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Incremental Validity of the Minnesota Multiphasic Personality Inventory (MMPI-A) and Rorschach Inkblot Test in Predicting the Number and Severity of Adolescents' Maltreatment Histories

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by

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Dedication

This dissertation is dedicated to anyone who has experienced childhood maltreatment and to the professionals committed to conducting research on and providing clinical services in the prevention and intervention of child abuse and neglect.

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Incremental Validity of the Minnesota Multiphasic Personality Inventory (MMPI-A) and Rorschach Inkblot Test in Predicting the Number and Severity of Adolescents' Maltreatment Histories

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There are limited empirical data to support the statistical and clinical utility of the Minnesota Multiphasic Personality Instrument-Adolescents (MMPI-A) and the Rorschach Inkblot Test within a maltreated sample. Therefore, this study examined if the MMPI-A and the Rorschach predicted the number and severity of maltreatment subtypes for abused and neglected adolescents. MMPI-A scales and Rorschach were organized according to four personality constructs: 1) self-perceptions and sense of personal competence (the *Self-System*); 2) emotional awareness and control (*Affective Regulation*); 3) reality testing and efficiency of information processing (*Cognitive Processes*); and 4) social interest and skillfulness (*Interpersonal Relatedness*).

The sample was drawn from an existing database, adolescents who were referred by Child Protective Services. All of the adolescents experienced some form of abuse or

neglect that typically resulted in their removal from the home. The Maltreatment Classification System (MCS; Barnett, Manly, & Cicchetti, 1993) was applied to systematically code maltreatment attributes.

Multiple regression analysis indicated that the MMPI-A scales and Rorschach variables measuring the *Self-System* scales both predicted the severity of *Physical Abuse*. When entered as separate blocks in a hierarchical regression analysis to determine if the two instruments added information above and beyond the other, regardless of the order, the MMPI-A scales and Rorschach variables added variance in predicting *Physical Abuse* severity. The *Self-System* Rorschach variables also predicted the number of maltreatment subtypes.

The *Cognitive Processes* MMPI-A scales predicted the severity of *Sexual Abuse*. The *Cognitive Processes* Rorschach variables predicted the number of maltreatment subtypes. The *Interpersonal Relatedness* MMPI-A scales predicted the severity of *Emotional Maltreatment*. The *Interpersonal Relatedness* Rorschach variables predicted the severity of *Sexual Abuse*.

There were no significant relations among MMPI-A scales and Rorschach variables despite being purported to measure similar constructs. Issues of instrument reliability and validity, variation in response format, and the complexity of adolescents' trauma histories are offered as possible reasons for the large number of MMPI-Scales and Rorschach variables that did not share relations with each other as well as maltreatment attributes. This study underscores the importance of considering clients' histories as well as instrument integrity when interpreting data in a psychological evaluation.

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CHAPTER ONE

Introduction

In 2000, nearly 3 million children, 12.2 per 1,000, were reported to Child Protective Service agencies in the United States as victims of maltreatment; two-thirds of those reports were determined to be critical enough to investigate (Children's Bureau Administration on Children, Youth, and Families [CBA]). Maltreatment categories include types of physical abuse, sexual abuse, neglect, and emotional maltreatment (Manly, Kim, Rogosch, & Cicchetti, 2001). Among the 879,000 children who were found to be victims of maltreatment, there were an estimated 19% who were physically abused, 10% who were sexually abused, 63% who suffered neglect, and 8% who were emotionally maltreated (CBA, 2000).

In the absence of intervention, or at the very least external support, child maltreatment can have deleterious effects. For many children who experience significant abuse and neglect, not only are their behavior and coping styles altered, but also aspects of their personality are impaired due to the internalization of the experience and its aftermath. Thus, for many, their sense of self (*Self-System*), *Affective Regulation*, *Cognitive Processes*, and *Interpersonal Relatedness* are independently and concurrently affected. The maltreatment experience can vary according to the age of onset, duration, who the perpetrator is, chronicity, severity, and/or combination of maltreatment subtypes. Psychological assessment can provide a rich source of information on the functioning of known victims and help guide treatment. In fact, there are times, when assessment is the primary source of information in discerning whether or not allegations of abuse and

neglect can be supported. This type of evaluation is considered to be a forensic assessment. In such cases, there is generally a one-time evaluation, in which assessment data are reviewed for evidence supporting or refuting allegations (Pinkerman, Haynes, & Keiser, 1993). Therefore, it is important to identify components of different measures that are most sensitive to the detection of different trauma experiences (Holaday, 2000).

The Minnesota Multiphasic Personality Inventory-A (MMPI-A) and Rorschach Inkblot Technique have been identified as among the top ten adolescent assessment instruments used by clinicians in the United States (Archer & Newsom, 2000). In a survey by Archer and Newsom (2000), the MMPI-A was identified as the fifth most commonly administered instrument to adolescents; and it was the only self-report objective personality measure included in the top ten ranked instruments. The MMPI-A is a true-false questionnaire that contains statements of self-reference that addresses feelings and thoughts. Currently, the MMPI-A does not contain any specific scales explicitly measuring abuse or other trauma experiences. However, several scales have been found to be elevated in children who have been sexually abused as interpreted in relation to general norms. Such scales are related to disruptive family environment, greater somatic complaints, dysphoric and anxious mood, strange thought processes, and social alienation (Forbey, Ben-Porath, & Davis, 2000; Holifield, Nelson, & Hart, 2002).

Pinkerman et al. (1993) conducted a study on the psychological practice of court-ordered delinquent and abuse/neglect assessments and found that the Rorschach is included in the typical evaluation. The Rorschach Inkblot Technique utilizes 10 standardized cards in which the examinee is instructed to interpret a series of ten inkblots

reproduced on those cards. These stimuli serve as a medium for generating information about an individual's personality. The Comprehensive Scoring (CS) System developed by John Exner represents the most standardized method of scoring and interpreting the Rorschach (Ganellen, 1996a). The CS examines three elements of each response: what people see (content), where they see it (location), and what determines how they see it (determinants; Exner, 1993).

Similar to the MMPI-A, there are no specific trauma variables identified on the Rorschach, although several attempts have been made to design specific scales to identify examinees who have endured traumatic events (e.g., Armstrong & Loewenstein, 1990; Kamphuis, Kugeares, & Finn, 2000; Levin & Reis, 1997). Holaday, Armsworth, Swank, and Vincent (1992) concluded their findings supported that the Rorschach could effectively address the developmental capacity for reality testing and level of affective integration in traumatized children and adolescents. However, even using the CS, relatively few studies, if any, have attempted to examine differences in Rorschach protocols for those with different maltreatment experiences, other than sexual abuse. In fact, Kamphuis et al. (2000) suggested the possibility that clinicians use different cutoff scores for interpretation because of the nature of responding among individuals with maltreatment histories. According to this view, children who have been maltreated may approach the task differently, and if they are compared to the general norms may look more pathological than they actually are.

The National Clearinghouse on Child Abuse and Neglect Information (2002) emphasized the importance for clinicians to "become familiar with assessment

instruments, their development, applicability to different populations, psychometric properties, and limitations" (p. 7). Yet despite the frequent use of the MMPI-A and Rorschach, it is uncertain whether these instruments are sensitive to the impact of maltreatment on interpersonal and intrapersonal functioning. For a measure to be considered valid, it has to be validated in a sample with similar characteristics (Standards for Educational and Psychological Testing, 1996). Given the dearth of empirical data to support the clinical utility of these instruments within a maltreated sample, research is clearly needed to determine if the MMPI-A and the Rorschach can capture the impact of different maltreatment experiences.

To that end, this proposed study examined MMPI-A scales and Rorschach variables within a maltreated population. As suggested by Holaday (2000), empirical findings can be used not only to understand the impact upon children who have been traumatized, but also to determine whether a trauma has taken place. For example, the author noted that it is conceivable that recognition of a traumatic experience might be overlooked because information about the trauma history is being withheld, symptomatology is under reported, or other psychopathological symptoms are being attributed as the cause of the presenting problems.

Ganellen (1996c) suggested selecting variables based on specific trait constructs, which are intended to glean particular personality types. That is, multiple scales tapping into various aspects of a particular construct would be more effective than focusing on individual scores. For purposes of this study, four domains of functioning have been selected: 1) *Self-System*, depicted as an individual's judgment of his or her personal worth

and competency; 2) *Affective Regulation,* delineated by the quantity and quality of one's emotional perceptivity and control; 3) *Cognitive Processes,* measured by evaluating a person's reality testing, effectiveness of information processing, and involvement in cognitive operations; and 4) *Interpersonal Relatedness,* represented by an individual's interest in social interactions and quality of interpersonal relationships (e.g., Bridges, Wilson, & Gacono, 1998).

The goal of this study was to investigate whether there are particular scales from the MMPI-A and variables from the Rorschach Inkblot Technique (CS) that predict the number and severity of the maltreatment subtypes. Should both instruments independently or incrementally predict individuals who have experienced different forms of maltreatment with varying severity, these findings would provide an empirical basis to demonstrate the sensitivity of these instruments to maltreatment experiences. On the other hand, if neither of these instruments predict the experience of different forms and severities of maltreatment, it raises the question of whether these measures are suited for assessment of personality, interpersonal functioning, and intrapersonal functioning, within a maltreatment population, or at the very least calls for investigations to ascertain items that might be more sensitive to the experience of abuse and neglect. It is hoped that the results of this study, relative to the utility of the MMPI-A and the Rorschach in identifying traumatized adolescents by the nature of their maltreatment experience, would afford empirical data pertaining to two of the most widely used assessment instruments. In so doing, this may serve to promote an increased understanding of the consequences of such abuse upon its victims during the adolescent stage of development (West, 1998).

The following were the primary questions addressed through this research project:

1. Do MMPI-A scales measuring the *Self-System* predict the number and severity of maltreatment subtypes (i.e., *Physical Abuse, Sexual Abuse, Neglect,* and/or *Emotional Maltreatment)*?

2. Do Rorschach variables measuring the *Self-System* predict the number and severity of maltreatment subtypes (i.e., *Physical Abuse, Sexual Abuse, Neglect,* and/or *Emotional Maltreatment)*?

3. Do MMPI-A scales measuring *Affective Regulation* predict the number and severity of maltreatment subtypes (i.e., *Physical Abuse, Sexual Abuse, Neglect,* and/or *Emotional Maltreatment)*?

4. Do Rorschach variables measuring *Affective Regulation* predict the number and severity of maltreatment subtypes (i.e., *Physical Abuse, Sexual Abuse, Neglect,* and/or *Emotional Maltreatment)*?

5. Do MMPI-A scales measuring *Cognitive Processes* predict the number and severity of maltreatment subtypes (i.e., *Physical Abuse, Sexual Abuse, Neglect,* and/or *Emotional Maltreatment)*?

6. Do Rorschach variables measuring *Cognitive Processes* predict the number and severity of maltreatment subtypes (i.e., *Physical Abuse, Sexual Abuse, Neglect,* and/or *Emotional Maltreatment)*?

7. Do MMPI-A scales measuring *Interpersonal Relatedness* predict the number and severity of maltreatment subtypes (i.e., *Physical Abuse, Sexual Abuse, Neglect,* and/or *Emotional Maltreatment)*?

8. Do Rorschach variables measuring *Interpersonal Relatedness* predict the number and severity of maltreatment subtypes (i.e., *Physical Abuse, Sexual Abuse, Neglect,* and/or *Emotional Maltreatment)*?

When a corresponding set of MMPI-A scales and Rorschach variables measuring each of the four constructs significantly predicted the same outcome variable (i.e., the number or severity of maltreatment subtypes), additional analyses were employed to address the overarching question: Does either instrument provide new information above and beyond what the other one already provided?

CHAPTER TWO

Literature Review

This chapter begins with a brief conceptualization of trauma and an overview of the most widely accepted definitions of the various forms of child maltreatment. The Maltreatment Classification System (MCS), with an emphasis on its effectiveness in discerning various aspects of childhood and adolescent maltreatment histories, is also presented. Child maltreatment definitions are followed by coverage of the MMPI-A that contains a discussion of the history and development of the instrument. The section on the MMPI-A is followed by a brief overview of projective techniques leading to a review of the Rorschach Inkblot Technique. The information provided on the Rorschach Inkblot Technique parallels that of the MMPI-A. There is a section that is devoted to a discussion of the controversy surrounding the Rorschach Inkblot Technique, and the debate in the literature surrounding the MMPI-A and Rorschach associations. The literature review concludes with a presentation of the MMPI-A scales and Rorschach variables, organized according to each instrument's constructional emphasis, among individuals with trauma histories.

It is important to note that there have been very few, if any, empirical investigations that specifically have examined maltreatment in adolescents using the Minnesota Multiphasic Personality Inventory for Adolescents (MMPI-A) and the Rorschach Inkblot Test. The primary focus of studies using the MMPI with an adolescent population has pertained to sexual abuse (e.g., Forbey et al., 2000; Holifield et al., 2002; Scott & Stone, 1986). A similar trend can found in the adult literature (e.g., Follette,

Naugle, & Follette, 1997; Griffith, Myers, Cusick, & Tankersley, 1997; Engels, Moisan, & Harris, 1994; Griffith, Myers, & Tankersley, 1996; Goldwater & Duffy, 1990; Lucenko, Gold, Elhai, Russo, & Swingle, 2000; Roland, Zelhart, Cochran, & Funderburk, 1985; Roland, Zelhart, & Dubes, 1988; Roland, Zelhart, & Dubes, 1989; Scott & Flowers, 1988; Scott & Stone, 1986). Two of those studies (Engels et al., 1994; Goldwater & Duffy, 1990) examined the link between childhood physical abuse and personality factors in adulthood using the MMPI/MMPI-2. One study examined the traumatic impact of a natural disaster on adolescents using the MMPI-A (Scott, Knoth, Beltran-Quiones, & Gomez, 2003)

Similarly, there is only limited amount of articles published on the Rorschach of youth who have been maltreated and most of the investigations have concentrated on sexual abuse (e.g., Clinton & Jenkins-Monroe, 1994; Leifer, Shapiro, Martone, & Kassem, 1991; Nash, Zivney, & Hulsey, 1993; Zimmerman & Dillard, 1994; Zivney, Nash, & Hulsey, 1988). There have been some Rorschach studies that have addressed differences in responses between children and adolescents who have been 'traumatized' and those who have not (e.g., Holaday, 1998; Holaday, 2000; Holaday et al., 1992; Holaday, Warren-Miller, & Whittenberg, 1994; Holaday & Whittenberg, 1994), the impact of sexual abuse into adulthood (e.g., Kamphuis et al., 2000; Leavitt & Labott, 1996; Saunders, 1991), and the impact of trauma during adulthood (e.g., Hartman et al., 1990; Kaser-Boyd, 1993; Sloan, Arsenault, Hilsenroth, Handler, & Harvill, 1996; Sloan, Arsenault, Hilsenroth, Harvill, & Handler, 1995; Swanson, Blount, & Bruno, 1990; van der Kolk, & Ducey, 1989). The Rorschach has been a more common instrument selected

for dissertation studies. Therefore, due to the limited amount of articles available, data from dissertations (AspenLeiter, 2000; Bank, 2001; Black, 2003; Talbott, 2001) have also been included as they contribute to the understanding of how these personality instruments capture the experiences of maltreated youth.

Conceptualization and Operational Definitions of Maltreatment

Childhood Trauma

In order to be able to discuss studies related to trauma as a way to formulate conjectures about children and adolescents who have experienced different forms of maltreatment, it is important to define what exactly is a 'trauma.' In this paper it is best conceptualized as "a psychologically upsetting experience that produces an emotional or mental disorder or otherwise has lasting negative effects on a person's thoughts, feelings, or behavior" (Dorland & Anderson, 2000, p. 1867).

Traumatic events are exceptional situations of helplessness and distress that a person experiences first hand, witnesses, or hears about, and which jeopardize the physical and/or psychological integrity of the individual or those close to him or her. Although trauma can involve harm done to the living body through the use of force or violence, it can also manifest through mental stress. Regardless of the nature of the traumatic experience, the definition itself implies that the events are psychologically and emotionally disturbing to a person.

Child Maltreatment

Child maltreatment, which encompasses both abuse and neglect, can be a form of chronic 'trauma.' Whether or not maltreatment is a traumatic experience for a child or an

adolescent depends upon the individual's subjective experience. Research has shown that about one-third of sexually abused children do not exhibit symptoms, and large proportions that do become symptomatic are able to recover. Less than one-fifth of adults who are abused in childhood show serious psychological disturbance (Rind, Tromovitch, & Bauserman, 1998). Nonetheless, when the maltreatment is chronic and severe enough for a child to be removed from the home, there is an increased likelihood that the event(s) would be considered traumatic (Davidson-Arad, Englechin-Segal, & Wozner, 2003). From a legal standpoint, a federal statute was implemented in 1974, entitled the U.S. Child Abuse and Prevention Act. This law defined child abuse and neglect as:

> The physical or mental injury, sexual abuse, negligent behavior, or maltreatment of a child under the age of eighteen by a person who is responsible for the child's welfare under circumstances which indicate that the child's health or welfare is harmed or threatened thereby as determined in accordance with regulations prescribed by the secretary (History of the Child Abuse Prevention and Treatment Act Public-Law 93-247, 1978).

In 1989, the National Institute of Child Health and Human Development recommended the following guidelines when determining if maltreatment has occurred: "behavior towards another person, which (a) is outside the norms of conduct, and (b) entails a substantial risk of causing physical or emotional harm. Behaviors included will consist of actions and omissions, ones that are intentional and ones that are unintentional" (cited in Christoffel et al., 1992, p. 1029).

There are four primary categories of maltreatment: physical abuse, sexual abuse, neglect, and emotional abuse/neglect. Physical abuse includes severe corporeal punishment, scalding, and beatings with an object. Sexual abuse includes incest, sexual assault by a relative or stranger, fondling of genital areas, exposure to indecent acts,

sexual rituals, or involvement in child pornography. Neglect is the presence of certain insufficiencies in the primary caregiver's responsibilities that harm the child's psychological and/or physical health. The assessment of child neglect requires consideration of cultural values and standards of care as well as recognition that the failure to provide the necessities of life may be related to poverty. Emotional neglect/abuse includes such acts as the use of extreme or bizarre forms of punishment, such as confinement of a child in a dark closet, symbolic acts designed to terrorize a child, and lack of nurturance or emotional availability by caregivers. Less severe acts, such as habitual scapegoating, belittling, or rejecting treatment, are often difficult to prove and, therefore, social services may not be able to intervene without evidence of harm to the child.

There has been some debate over whether neglect should be viewed as a 'trauma.' Neglect does not necessarily involve physical injury, and it is unclear whether it results in either an emotional or mental shock. However, neglect does involve some level of emotional stress and it could result in disordered behaviors or feelings (Paget, Philip, & Abramczyk, 1993). Paget et al. (1993) contended that neglect should be considered a traumatic experience because it can be harmful. However, Paget and colleagues also argued that abuse is different from neglect, and should not automatically be grouped together when examining the impact of maltreatment on functioning. Paget and colleagues emphasized the differences among these forms of maltreatment, noting that abuse is a willful act of commission, whereas neglect is an act of omission.

Although the various forms of child maltreatment may take place separately, they often occur in combination. Ney, Fung and Wickett (cited in Higgins & McCabe, 1998) found that 95% of their clinical adolescent sample experienced more than one form of maltreatment type; most commonly emotional maltreatment was found with other maltreatment types, especially neglect. Engels et al. (1994) recorded that 31% of female outpatients reported both physical and sexual abuse. Fox and Gilbert (cited in Higgins & McCabe, 1998) recorded that 32% of physically abused respondents reported other types of maltreatment. Crittenden, Claussen, and Sugarman (cited in Higgins & McCabe, 1998) found that 52% of the children had experienced both physical and emotional maltreatment.

Many other studies (e.g., Bolger & Patterson, 2001; Bolger, Patterson, & Kupersmidt, 1998; Manley et al, 2001) have noted that children and adolescents often experience multiple forms of maltreatment. Moreover, there has been some inconsistency in the literature as to whether exposure to domestic violence is considered separately or as part of *Emotional Maltreatment* (which is how it was coded for the current study). For example, McGee, Wolfe, Yuen, Wilson, and Carnochan (cited in Higgins & McCabe, 1998) noted that 36% of the adolescents in their sample had experienced the four types of child maltreatment, and 20% had witnessed domestic violence in addition to the four types of maltreatment.

Maltreatment Classification

The problem. As evident in the preceding paragraphs, many youth endure multiple types of trauma. In addition, the nature of the maltreatment experiences may

vary according to the age of onset, duration, frequency, severity, and perpetrator. Although some differences in psychological functioning based on maltreatment experiences have been gleaned, research has not identified a clear pattern of personality characteristics or psychological symptoms that are related to different experiences of maltreatment.

One of the most cited reasons for inconsistent findings in the maltreatment literature is the propensity of studies to aggregate different types of maltreatment. Research that has not differentiated between children who were abused and those who were neglected, or else that has excluded one subtype from the study, may have only partially depicted the risk for negative outcomes among children who have been maltreated (Manly et al., 2001). Much of the literature has concentrated on physical and sexual abuse, with relatively little consideration to neglect or emotional maltreatment. Nonetheless, chronic neglect endured by the young may indeed lead to an accumulation of stress that results in consequences comparable to those produced through physical abuse (Seinfeld, 1991).

The Maltreatment Classification System. One of the primary issues related to measuring maltreatment is whether variables should be counted as did it happen or did it not as in dichotomous coding, or is it better to conceptualize the trauma based on frequency, severity, and duration as in viewing it along a continuum (Bernstein et al., 2003). In response to the challenges in measuring maltreatment, many researchers have documented the necessity for a classification system. To this end, researchers developed the maltreatment classification system [MCS] (Barnett, Manly, & Cicchetti, 1993). It is a

multi-dimensional system that includes operational definitions of the subtypes of abuse and neglect in order to differentiate clusters of children based on their maltreatment histories. The MCS includes coding criteria for the following: age of onset, frequency, severity, and chronicity, the developmental periods through which abuse occurred, and perpetrator information (Barnett et al., 1993). The MCS can be found at the end of this document, labeled Appendix A.

The MCS contains six primary categories, three of which have been considered different aspects of *Neglect* (*Failure to Provide, Neglectful Supervision, and Moral-Legal/Educational*). The first identified subtype on the MCS is *Physical Abuse,* which encompasses the commission of any action, other than an accident, by a responsible adult in a caregiving role that places a child at risk for or causes bodily harm. Coding for physical abuse attributes is further broken down according to the area of the body (e.g., legs, neck, etc.) affected by the assault and the degree of frequency and/or injury endured (Barnett et al., 1993).

The second subtype is *Sexual Abuse*, which is designated when a caregiver or other responsible adult makes or attempts to make any sexual contact or exposes a child to sexually explicit materials. In such instances, this would include any adult, relative, or friend who represents an authority figure to the child. There are five severity ratings ranging from exposure to sexually explicit materials to the use of force.

As noted above, *Neglect* is subdivided into three areas. One of the forms of *Neglect* is termed *Physical Neglect, Failure to Provide,* and Refers to failure on the part of the adult responsible for the child's care to employ a minimum measure of attention to

meeting the corporeal requirements of the child. This category includes subcategories such as failing to provide food, shelter, clothing, to seek medical or mental health attention, and to ensure the proper hygiene of the child. A mother's use of drugs or consumption of alcohol is coded within the context of medical neglect, and a severity rating is assigned based on whether the child was just exposed (e.g., level 3) or was born addicted (e.g., level 5). A second form of *Neglect* is *Physical Neglect, Lack of Supervision* that refers to the failure on the part of an adult responsible for the child's care to sufficiently safeguard the child's environment both at home and elsewhere. Examples include failing to provide or arrange for adequate supervision, placing the child in a dangerous or life-threatening situation, 'kicking' a child out of the house or refusing to allow a runaway to return home, and allowing the child to be cared for by, or in the presence of, a known sexual perpetrator and/or violent offender. The third type of *Neglect* encompasses *Moral/Legal* and/or *Educational Neglect* and entails the caregiver's participation in illegal acts with the child's knowledge (such as substance abuse), the caregiver involving the child in felonies or illegal acts or allowing the child to commit illegal acts, and the caregiver's failure to ensure the child's daily attendance at school (Barnett et al., 1993).

Emotional Maltreatment is characterized by actions and/or caustic comments that compromise children's psychological safety and security, acceptance and self-esteem, and age-appropriate autonomy.

Research supporting efficacy of the MCS. Manly, Cicchetti, and Barnett (1994) examined the relations between maltreatment attributes (i.e., maltreatment subtypes, or

combination of subtypes, age of onset, duration, frequency, and severity) and psychological adjustment, personality patterns, and social behaviors. The researchers found that children who had been maltreated (n = 492) were perceived overall as having lower levels of adjustment than the children who had not been maltreated (n = 322). However, the types of adjustment difficulties varied according to the type of maltreatment experienced, as well as the severity and the developmental time period when the maltreatment occurred. These findings underscore the importance of considering the specific elements of maltreatment experiences, rather than a generalized classification.

Bolger et al. (1998) found that chronic abuse interacted with the developmental stage of the victim at the onset of abuse, to moderate the consequences of the *Emotional Maltreatment*. At a younger age, *Emotional Maltreatment* was significantly related to difficulty with peer relationships; *Physical Abuse* related to both interpersonal and intrapersonal difficulties; *Neglect* was associated with difficulties in interpersonal relationships, including having fewer relationships that were considered satisfying as well as enduring many conflicted relationships; and *Sexual Abuse* was predictive of low self-esteem. The data also supported differentiation in outcomes between singly abused/neglected children compared to children who had experienced multiple subtypes.

Classifying maltreatment for adolescents is challenging. It is more difficult in older children to disentangle problematic behavior from maltreatment; for example with truancy or delinquent behavior that the parents cannot control, it may be that the parents are negligent or else it may just be that they are ineffectual. Nonetheless, when applied to

a sample with severe child maltreatment (i.e., children removed from home), it would be expected that there would be classifiable maltreatment using the MCS (J.T. Manly, personal communication, September 6, 2002).

Although there have been less investigations using the MCS with adolescents, there have been a few published studies applying the classification system to this age group. For example, using the MCS to code incidents of maltreatment with a stratified sample of 1000 adolescents, Smith and Thornberry (1995) not only found that a history of maltreatment increased the risk for adolescent delinquent behavior, but also discovered that frequency, severity, duration, and number of maltreatment subtype experiences were associated with higher rates of delinquency. These findings, along with other studies (e.g., Thornberry, Ireland, & Smith, 2001) highlight the importance of examining other variables rather than simply ascertaining whether or not maltreatment has occurred.

Personality: *Functions That Contribute To Its Development*

Personality, as defined by the American Heritage College Dictionary (1993), includes: "The pattern of collective character, behavioral, temperamental, emotional, and mental traits of a person" (p. 1020). Personality dynamics are viewed as "the nature of people as defined by underlying needs, attitudes, conflicts, and concerns that influence how they are likely to think, feel, and act at particular points in time under particular circumstances" (Weiner, 1997, p. 9). To that end, personality should be viewed as a multidimensional construct, in which various aspects of intrapersonal and interpersonal functioning can be discerned. Moreover, broadly defined, personality assessment would

examine the way in which a person perceives the world, relates to others, solves problems, regulates emotions, manages stress, and copes with life's challenges.

Maltreatment and Personality Development

Since traumatic experiences in childhood occur during a time when personality is being formed and when there are ongoing revisions of the inner model of the world, self, and others, there may be a developmental tendency for incompatible models to form (Pynoos, 1994). In an environment in which maltreatment is enduring, it is nearly impossible for the child to internalize a sense that others are dependable, emotionally present, and predictable.

van der Kolk (1985) highlighted seven primary areas (alterations in regulating affect arousal, alterations in attention and consciousness, somatization, alterations in self-perception, alterations in the perception of the perpetrator, alterations in relation to others, and alterations in systems of meaning) that differentiated adults who had been abused and neglected as children from adults who experienced other forms of trauma.

Seinfeld (1991) examined childhood trauma from an object relations perspective, predominantly focusing on the personality development of children who are neglected. He argued that problematic parent-child relationships that involve denial of basic nurturance lead to poor self-regard, social withdrawal, and emotional alienation. Similarly, Nichols (1992) contended that impaired parent-child interactions lead to insecurity, as well as an impeded development of a healthy self-concept and adequate interpersonal relationships. Unavailability of a caregiver might interfere with the

development of the parent-child attachment relationship. Consequently, disrupted attachment experiences can trigger isolation and affective disengagement.

Commonality among most of the theories, regardless of orientation, is the contention that the effects of maltreatment differ from other forms of trauma because the source of the trauma exists within the context of caregiver-child relationships, thus creating a state of flux concerning the preservation of primary attachments, developing a sense of trust, and finding the capacity for self-regulation, self-soothing, and self-initiation. The disruption of important early relationships may result in the child having deficits in affect regulation, difficulties in coping with new or stressful situations, poor problem-solving skills, and unstable interpersonal relationships (Aber & Allen, 1987).

Additive Effects of Multiple Maltreatment

Nichols (1992) theorized that multiple accounts of abuse and/or neglect would be more harmful to a child than the experience of only one form of maltreatment. The theorist speculated, for example, that youth who experienced parental rejection or who had parents who failed to provide nurturance to their children, in conjunction with either physical or sexual abuse would evidence more impairment in functioning because of the cumulative nature of the trauma.

There is also empirical evidence substantiating the conjecture that certain forms of maltreatment have different outcomes, and that generally multiple forms of maltreatment experiences lead to significantly more emotional and behavioral problems in comparison to single forms of abuse or neglect. For instance, Hughes, Parkinson and Vargo (cited in Higgins & McCabe, 1998) compared three groups: children who had (a)

witnessed domestic violence, (b) witnessed and experienced physical violence, and (c) a non-maltreated comparison group of children. The combined maltreatment group had significantly more behavior problems than the other two groups. Eckenrode, Laird, and Doris (cited in Higgins & McCabe, 1998) found the least adjusted group of children had experienced neglect that occurred in combination with physical or sexual abuse. McGee, Wolfe, and Wilson (cited in Manly et al., 2001) examined outcomes in adolescents with maltreatment histories. Their data supported an interrelationship between developmental period and subtype. In particular, neglect and emotional maltreatment that occurred in early and middle childhood were associated with greater behavior problems for females. For males, behavior problems were predicted by early childhood occurrence of both physical and psychological abuse, as well as the interaction of neglect and witnessing domestic violence.

Measuring Personality

Minnesota Multiphasic Personality Inventory-Adolescents (MMPI-A)

Development of the MMPI-A. The original Minnesota Multiphasic Personality Inventory (MMPI) was constructed to identify maladaptive personality constructs and psychopathology in adulthood. The MMPI was developed at the University of Minnesota Hospital on patients, with their relatives and visitors as controls. Developers considered the demographics of the non-patients comparable to the adult population of Minnesota in the 1930s: between the ages of 16 and 65, primarily married, living in small towns and rural areas, with at least an eighth-grade education level. A pool of over 1,000 potential items to use in the inventory was developed, but after elimination of similar or poorly

worded statements, the item list was reduced to 504. The content of these original items reflected the range of psychiatric, medical, and neurological disorders.

The clinical criterion groups consisted of carefully selected psychiatric patients and participants representing major diagnostic categories. The scales were Scale 1 (Hs: Hypochondriasis), Scale 2 (D: Depression), Scale 3 (Hy: Hysteria), Scale 4 (Pd: Psychopathic Deviate), Scale 6 (Pa: Paranoia), Scale 7 (Pt: Psychasthenia), Scale 8 (Sc: Schizophrenia), and Scale 9 (Ma: Hypomania). The responses of individuals who completed the MMPI were compared to the scores of these clinical groups. If examinees scored in the range of the various clinical groups on the respective scales, they were considered to be exhibiting symptoms similar to that of the clinical group. In addition, two non-clinical scales were included in the MMPI: Scales 5 (Mf: Masculinity-Femininity) and 0 (Si: Social Introversion; see Archer, 1997b; Ben-Porath & Davis, 1996; Butcher & Williams, 1992).

As the MMPI appeared to be effective in differentiating adults who fit into different diagnostic groups from those who did not present with psychopathological symptoms, several clinicians and researchers attempted to use the instrument to identify psychological disorders and compromised mental health of adolescents in both inpatient and outpatient settings. At first, clinicians relied on adult norms to make interpretations about adolescents' protocols. In 1945, Capwell (cited in Archer, 1997b) published one of the first empirical investigations of the MMPI with adolescents. The researcher discovered that one of the clinical scales [Scale 4 (Pd: Psychopathic Deviate)] accurately discriminated juvenile delinquents from those who had never engaged in criminal

activities. Then in 1963, Hathaway and Monachesi (cited in Archer, 1997b) released findings from a longitudinal study in which they administered the MMPI to 3,971 ninth-graders in 1947 and then again in 1950. The researchers then followed the sample for almost a decade. This data became the base from which Marks and Briggs (cited in Archer, 1997b) developed the most widely used adolescent norms for the MMPI (first published in Dahlstrom cited in Archer, 1997b). For a more complete historical perspective on the MMPI-A see Archer (1997b), Ben-Porath and Davis (1996), or Butcher and Williams (1992).

Other attempts (e.g., Colligen & Offord cited in Archer, 1997b; Gottesman, Hanson, Kroeker, & Briggs cited in Archer, 1997b) were made to publish alternate adolescent norms for the MMPI. In 1982, the MMPI Restandardization Project began work on the first revision and restandardization of the MMPI in 50 years. This endeavor stemmed from the fact that over time, many professionals began to have doubts about the MMPI. For example, some studies showed that African-Americans scored higher than Caucasian Americans, raising the issue of test bias (Dana & Whatley, 1991). Others argued that the language of the test questions was outdated as well as sexist, racist, and offensive in some cases (Archer & Gordon, 1994). Others simply noted that it was time to update the norming sample, and investigate the inclusion of new scales (Archer, 1997b). At that time, the committee also decided to investigate whether alterations in some MMPI items could help make the MMPI a more viable instrument for working with adolescents. After the release of the MMPI-2 in 1989, a project was initiated to identify items that were not relevant to the developmental tasks of adolescents, to reword items to

increase content clarity and quality, and to include items that were more developmentally appropriate (see Archer, 1997b; Butcher & Williams, 1992).

As part of this endeavor, the goal was to shorten the length of the instrument so that it would be more appealing to adolescent respondents. The initial step was achieved through the development of an experimental test booklet referred to as the MMPI Form TX. The MMPI TX included 704 items, with the first section of the booklet containing the identical 550 items of the MMPI, with 82 of these original items revised to eliminate out of date and awkward language (see Archer, 1997b; Ben-Porath & Davis, 1996; Butcher & Williams, 1992). Fifty-eight new items were added that assessed treatment compliance, attitudes toward self-change, amenability to therapy, alcohol and drug use, eating problems, and suicide potential. In addition, 96 new items were added that were specific to adolescent psychosocial development regarding peer and school interactions, relationships with parents and families, and sexuality (Williams, Butcher, Ben-Porath, & Graham, 1992).

Eight states (California, Minnesota, New York, North Carolina, Ohio, Pennsylvania, Virginia, and Washington) participated in the norming project for the adolescent MMPI. Adolescents were typically recruited via mail from registration lists of high school juniors and seniors. Students whose parents gave them permission to participate completed the questionnaire in small groups within the school setting. Approximately 2,500 students completed the MMPI Form TX. The clinical group included 420 males and 293 females ages 14-18 who were recruited from several treatment facilities in the Minneapolis area, including alcohol and drug treatment

programs, inpatient mental health facilities, day treatment programs, and alternative school programs. Protocols were excluded if the forms were not complete, if there was a raw score of 25 or above on the Infrequency Scale (derived of items from the original version of the MMPI), or if participants were either under 14 or over 18. The final adolescent normative sample included 805 males and 815 females. The mean age for males was 15.5 (*SD* = 1.17) and the mean age for females was 15.6 (*SD* = 1.18; see Archer, 1997b; Butcher & Williams, 1992).

Components of the MMPI-A scales. Based on the initial data collected, the MMPI-A was constructed. The adolescent version of the instrument contained 478 questions, with the first 350 representing the Basic Validity Scales and the Clinical Scales, and the additional 128 items consisting of many of the items that load onto Content and Supplementary scales. The final form of the MMPI-A consisted of 10 Clinical scales, 7 Validity scales, 15 Content scales, and 6 Supplementary scales. The test developers assigned the same labels to the 10 Clinical scales as identified with the original MMPI as they contended the items that made up these scales were characteristic of their respective clinical disorders. The MMPI-A retained the original 10 Clinical scales. Since it was recognized that many of these scales contained a heterogeneous array of items, most of them were examined to encompass a more homogeneous range of items. Therefore, as with both the MMPI and MMPI-II, most of the Clinical scales are broken down into subscales; there are 28 Harris-Lingoes Clinical Subscales and 3 Si subscales (see Archer, 1997b; Butcher & Williams, 1992). See Table 1 for a list and brief descriptions of each of

the 69 MMPI-A scales. The descriptions are adapted from Archer (1997), Archer and Krishnamurthy (2002), and Forbey et al. (2000).

Table 1

Summary and Brief Description of the Validity, Clinical, and Clinical Subscales (Harris-Lingoes) of the MMPI-A

MMPI-A Scales	Description
Basic Validity Scales	
L (Lie)	14 items selected to detect attempts to present oneself in an unrealistically favorable manner
F (Infrequency)	66 items selected to detect attempts to present oneself in an unusual manner
K (Defensiveness)	30 items selected to detect potentially defensive response patterns
VRIN	50 items selected to assess an individual's tendency to respond in a consistent manner.
TRIN	24 items selected to detect an individual's tendency to respond indiscriminately to items as either true or false
Clinical Scales	
Scale 1 (Hs: Hypochondriasis)	32 items that reflect a preoccupation with health and illness
Scale 2 (D: Depression)	57 items that reflect issues such as dissatisfaction with life and hopelessness

Table 1

Continued

MMPI-A Scales	Description
D1 - Subjective Depression	29 items that reflect feelings of depression, unhappiness, and guilt; lack of energy and interest in everyday activities; deficits in concentration and attention; self-critical tendencies
D2 - Psychomotor Retardation	14 items that reflect lack of energy or the inability to mobilize resources; social withdrawal and social avoidance; denial of hostile or aggressive impulses
D3 - Physical Malfunctioning	11 items that reflect concerns and preoccupation with physical health; reporting a wide array of physical symptoms
D4 - Mental Dullness	15 items that reflect complaints of difficulties with memory, concentration, or judgment; lack of energy; difficulty in making decisions
D5 - Brooding	10 items that reflect lack of energy, apathy, and lethargy; feelings of despondency and sadness
Scale 3 (Hy: Hysteria)	60 items that reflect displaying histrionic reactions to stress
Hy1 - Denial of Social Anxiety	6 items that reflect social extroversion; ease in talking to, and dealing with, others
Hy2 - Need for Affection	12 items that reflect strong needs for attention and affection, trusting in relationships, denial of negative feelings about others
Hy3 - Lassitude-Malaise	15 items that reflect unhappiness and discomfort; fatigue, physical problems, and the perception of poor physical health; sadness and despondency; poor appetite and sleep disturbance

Table 1

Continued

MMPI-A Scales	Description
Hy4 - Somatic Complaints	17 items that reflect multiple somatic complaints and concerns; head or chest pains; fainting, dizziness, and problems with balance; nausea, vomiting, and gastrointestinal disturbances
Hy5 – Inhibition of Aggression	7 items that assess the presence of aggressive impulses
Scale 4 (Pd: Psychopathic Deviate)	49 items that reflect antisocial, acting out behavior
Pd1 - Familial Discord	9 items that reflect view of home and family as unpleasant, hostile, or rejecting; view of home situation as lacking in love, critical, and controlling; The occurrence of frequent quarrels and conflicts within the family
Pd2 - Authority Problems	8 items that reflect history of legal violations and antisocial behaviors; history of conflicts with individuals in authority; resentful of societal standards, customs, or norms
Pd3 - Social Imperturbability	6 items that reflect denial of social anxiety and dependency needs; social extroversion and social confidence; tendency to hold strong opinions that are vigorously defended
Pd4 - Social Alienation	12 items that reflect feeling misunderstood, alienated, and isolated; feelings of loneliness, unhappiness, and estrangement from others; tendency to blame others for problems or conflicts
Pd5 - Self-Alienation	12 items that reflect emotional discomfort and unhappiness; problems in concentration and attention; feelings of guilt, regret and remorse; possibility of excessive alcohol use

Table 1

Continued

MMPI-A Scales	Description
Scale 5 (Mf: Masculinity/Femininity)	44 items that reflect stereotypically masculine or feminine interests
Scale 6 (Pa: Paranoia)	40 items that reflect paranoid symptomatology
Pa1 - Persecutory Ideas	17 items that reflect a sense of being treated unfairly by others; Externalization of blame for problems and frustrations, use of projection, possible presence of persecutory ideas and delusions of persecution
Pa2 - Poignancy	9 items that reflect view of self as sensitive, high-strung, and easily hurt; belief that one feels more intensely than do others; loneliness, sadness, and a sense of being misunderstood; self-perception of uniqueness or specialness
Pa3 - Naiveté	9 items that reflect naively trusting and optimistic; denial of hostile or cynical feelings or attitudes; presentation of high moral or ethical standards; unlikely to act impulsively
Scale 7 (Pt: Psychasthenia)	48 items that reflect a wide variety of anxiety related symptomatology
Scale 8 (Sc: Schizophrenia)	77 items that reflect a variety of perceptual distortions and bizarre behavior
Sc1 - Social Alienation	21 items that reflect lack of rapport with others; avoidance of social situations and withdrawal from relationships; sense of being misunderstood, unfairly criticized, or unjustly punished; hostility or anger toward family members

Table 1

Continued

MMPI-A Scales	Description
Sc2 - Emotional Alienation	11 items that reflect feelings of self-criticalness, despondency, depression, and despair; possibility of suicidal ideation; view of life as difficult or hopeless; possibility of sadistic or masochistic experiences
Sc3 - Lack of Ego Mastery-Cognitive	10 items that reflect admission of strange thought processes; feelings of unreality; problems in concentration and attention
Sc4 - Lack of Ego Mastery-Conative	14 items that reflect feelings of psychological weakness and vulnerability; problems in concentration and attention; lack of energy and psychological inertia; guilt, dependency, depression, and possible suicidal ideation
Sc5 - Lack of Ego Mastery-Defective Inhibition	11 items that reflect loss of control over emotions and impulses; restlessness, irritability, and hyperactivity; episodes of uncontrollable laughing or crying; possible dissociative experiences or symptoms
Sc6 - Bizarre Sensory Experiences	20 items that reflect strange or unusual sensory experiences; loss of emotional control; the occurrence of a variety of neurological symptoms including paralysis, loss of balance, or involuntary muscular movements
Scale 9 (Ma: Mania)	46 items that reflect hypomaniac symptoms

Table 1

Continued

MMPI-A Scales	Description
Ma1 - Amorality	6 items that reflect a tendency to perceive others as motivated by selfishness and self-gain; endorsement of antisocial or asocial attitudes, beliefs, or behaviors; drug abuse
Ma2 - Psychomotor Acceleration	11 items that reflect acceleration of thought or speech; tension, restlessness, and hyperactivity; need to seek out excitement and stimulation; attraction to sensation-seeking and risk-taking behaviors
Ma3 - Imperturbability	8 items that reflect denial of social anxiety; comfort and confidence in social situations; freedom or independence from influence of the opinion of others; tendency to seek out excitement
Ma4 - Ego Inflation	9 items that reflect feelings of self-importance, possibility of grandiosity; restfulness of perceived demands from, or inference by others
Scale 0 (Si: Social Introversion)	62 items that measure social relationship problems
Si1 - Shyness/Self-Consciousness	14 items that reflect shyness around others and easily embarrassed ill at ease in social situations; uncomfortable in new situations
Si2 - Social Avoidance	8 items that reflect a dislike or avoidance of social activities; avoidance of contact or involvement with others

Table 1

Continued

MMPI-A Scales	Description
Si3 - Alienation-Self and Others	17 items that reflect low self-esteem and self-concept; self-critical and lack of confidence in judgment; nervous, fearful, and indecisive; suspicious or fearful of others
Content Scales	
A-anx (Adolescent-Anxiety)	21 items that reflect symptoms of anxiety
A-obs (Adolescent-Obsessiveness)	15 items that reflect excessive worrying
A-dep (Adolescent-Depression)	26 items that reflect symptoms of depression
A-hea (Adolescent-Health Concerns)	37 items that reflect somatic concerns
A-aln (Adolescent-Alienation)	20 items that reflect emotional distance from others
A-biz (Adolescent-Bizarre Mentation)	19 items that reflect peculiar thoughts and experiences
A-ang (Adolescent-Anger)	17 items that reflect problems with controlling anger
A-cyn (Adolescent-Cynicism)	22 items that reflect misanthropic attitudes
A-con (Adolescent-Conduct Problems)	23 items that reflect acting out problems
A-lse (Adolescent-Low Self-Esteem)	18 items that reflect negative opinions about oneself

Table 1

Continued

MMPI-A Scales	Description
A-las (Adolescent-Low Aspirations)	16 items that reflect a negative achievement orientation
A-sod (Adolescent-Social Discomfort)	24 items that reflect discomfort in social relationships
A-fam (Adolescent-Family Problems)	35 items that reflect considerable problems with parents and other family members
A-sch (Adolescent-School Problems)	20 items that reflect various behavioral and academic difficulties in school
A-trt (Adolescent-Negative Treatment Indicators)	26 items that reflect negative attitudes toward mental health providers and/or treatment
Supplementary Scales	
MAC-R - MacAndrew Alcoholism-Revised	49 items that measure personality factors that place an adolescent at risk for developing a substance abuse problem
ACK - Alcohol/Drug Problem Acknowledgment	13 items that deal directly with acknowledging a substance problem
PRO - Alcohol/Drug Problem Proneness	36 items that evaluate an adolescent's potential for the development of drug and alcohol problems
IMM - Immaturity	43 items that assess psychological maturation (in terms of cognitive complexity, self-awareness, judgment, and impulse control) during adolescence
Welsh's Anxiety Scale (A-scale)	35 items associated with emotional or affective distress
Welsh's Repression Scale (R-scale)	35 items to assess the degree to which individuals represent themselves as conventional, submissive, and agreeable

Validity scales of the MMPI-A. The validity scales were developed to assist at detecting questionable response tendencies, including over reporting, under reporting, and random reporting, or to identify participants who might have had difficulty comprehending or reading the test items (Ganellen, 1994). The seven validity scales are: Cannot Say (? Scale), the Lie Scale (L-scale), Infrequency (F-Scale), Infrequent Items (F1) and Infrequent Items (F2), Defensiveness (K-scale), True Response Inconsistency scale (TRIN), and Variable Response Inconsistency (VRIN). Each of these Validity Scales can be reviewed in order to examine the genuineness of the responses. The first Validity index is referred to as "Cannot Say." This scale is simply the raw score of items that were left blank or that were marked both "True" and "False." A protocol has questionable validity when more than 10 items are left blank and it is considered invalid when 30 or more items are omitted. The L-Scale is aimed at identifying respondents who portray themselves in a favorable light; thus an elevated L-Scale signifies that an adolescent tended to "fake good" or under report symptoms.

The next set of validity scales is referred to as the "Infrequency Scales." This set is composed of three scales, F, F (sub 1) and F (sub 2). The F scale is composed of 66 items indicating the degree to which an individual has endorsed items that are typically answered "False." The F (sub 1) and F (sub 2) are simply the first half and second half, reflecting whether or not the tendency to endorse infrequent items occurs in the first half or the latter half. The K-Scale measures the degree to which an examinee approaches the administration in a defensive manner. The VRIN and TRIN Scales were designed specifically for the MMPI-A to detect inconsistent responding of either a variable

(random) or biased (yea-saying or nay-saying) nature, or fixed responding, respectively (see Archer, 1997b; Ben-Porath & Davis, 1996; Butcher & Williams, 1992).

Content scales of the MMPI-A. There are 15 content scales that ascertain the presence or absence of tendencies indicative of a problem specific to each scale. The content scales were constructed following a process that involved five steps. First, scales and items from the adult MMPI appropriate for inclusion were identified. Second, specific items were deleted and others added to increase the psychometric properties. Third, a rational review of scale contents was conducted to maximize relevance to targeted constructs. The fourth step involved further statistical extraction and the elimination of items with high correlations with other content scales. The fifth step encompassed the selection of descriptive narratives for each scale based on empirical findings and conclusions based upon theoretical reasoning (Williams et al., 1992).

The content scales addressed issues related to negative peer group influence, alcohol and drug abuse, family relationship difficulties, school and achievement problems, eating disorders, and identity problems (Archer, 1997b; Williams et al., 1992). The scales are: Adolescent-Anxiety (A-anx), Adolescent-Obsessiveness (A-obs), Adolescent-Depression (A-dep), Adolescent-Health Concerns (A-hea), Adolescent-Alienation (A-aln), Adolescent-Bizarre Mentation (A-biz), Adolescent-Anger (A-ang), Adolescent-Cynicism (A-cyn), Adolescent-Conduct Problems (A-con), Adolescent-Low Self-Esteem (A-lse), Adolescent-Low Aspirations (A-las), Adolescent-Social Discomfort (A-sod), Adolescent-Family Problems (A-fam), Adolescent-School Problems (A-sch), and Adolescent-Negative Treatment Indicators (A-trt). The supplementary scales are:

Alcohol/Drug Problem Acknowledgment (ACK), Alcohol/Drug Problem Proneness (PRO), Immaturity (IMM), Anxiety (A-Scale), and Repression (R-Scale; Archer, 1997b). There are six supplementary scales that include the MacAndrew Alcoholism Scale (MAC-R), the Acknowledgement Scale (ACK), The Proneness Scale (PRO), the Immaturity Scale (IMM), the Anxiety Scale (A), and the Repression (R) Scale (Williams et al., 1992). Please see Table 1 for a list and brief description of the 69 MMPI-A scales.

MMPI-A Structural Summary. The MMPI-A scan can be organized further by using the MMPI-A Structural Summary. Archer, Belevich, and Elkins (1994) conducted a factor analysis on 1,620 protocols from the MMPI-A normative sample. They identified eight primary factors that collectively accounted for 94% of the scale variance for this sample. These factors were labeled General Maladjustment, Immaturity, Disinhibition/Excitatory Potential, Social Comfort (reversed as Social Discomfort in the Structural Summary form), Health Concerns, Naiveté, Familial Alienation, and Psychoticism, respectively.

Archer and Krishnamurthy (1994) developed a Structural Summary form designed to aid clinicians in interpretation. The top portion of the form provides a relatively simply means of isolating indices of test-taking that would challenge the integrity of the interpretation. The main portion of the form presents clusters of scales and subscales organized around the eight factor dimensions. The scales within each factor cluster, which typically correlate in the range of $\geq .60$ or $\leq -.60$ with that factor, are arranged in terms of the conventional groupings of clinical scales, content scales, supplementary scales, Harris-Lingoes and Si Subscales. Within these subgroups, scales

are presented in descending order from the most effective markers for the factors to those scales or subscales having progressively lower correlations with that factor.

Archer (1997a) emphasized that the Structural Summary approach should be considered when researchers plan to examine a large group of variables. However, the researcher pointed out that further research is needed to examine the efficacy of these factors in differentiating various characteristics of adolescents. See Appendix B for a copy of the MMPI-A Structural Summary. A discussion of the factors being used in this study will be included when discussing the variables selected for analysis.

Validity of the MMPI instruments. Anastasi (1988) indicated that the MMPI represents an outstanding example of test construction methodology. Test items were administered to two or more groups of participants—a criterion group selected for homogeneity with respect to a certain diagnosis, cluster of features, traits, or other characteristics (e.g., schizophrenia) and a normal comparison group that did not share the same characteristics[1].

Williams et al. (1992) noted that the content scales of the MMPI-A were constructed primarily on the basis of item substance. Validity analyses on these scales with external criterion served to further support the construct with which the scales were identified as measuring. Some of the scales were associated strongly with similar measures and standards related to the construct; however, there were some that yielded very few relationships with other sources of information. For instance, Content Scale

[1] See also Cronbach and Meehl (1955) for a discussion of various forms of validity, and their sense of both the Rorschach and MMPI in the instruments' early development.

Cynicism (A-cyn) had no significant correlations, whereas School Problems (A-sch) had 44 significant correlates. However, the authors noted that failure to find significant relationships with some of the scales might not necessarily refute the construct validity of the scale, but rather the failure to include relevant criterion measures for analyses.

Williams et al. (1992) also concluded that further support for the construct validity of the content scales is based on the fact that several of the scales correlate with the same external criterion measures, but there is no overlap among items. For example, both A-con and A-sch correlated significantly with a variety of school-related problems (e.g., grades in school, disciplinary referrals, academic problems). Since these scales have no overlapping items, it seems likely that the similarity of correlates is explained by the overlap of the constructs underlying the scales. Nonetheless, although the two scales do strongly correlate (.57) with each other, they still appear to be capturing different aspects of an individual's attitude toward various life events. Accordingly, A-con was also significantly related to the number of arrests for stealing, views toward the criminal system, and court appearances while A-sch was not.

One issue that has been raised regarding the MMPI-A clinical scales is the fact that several of the scale names reflect diagnoses that are no longer part of the Diagnostic Statistical Manual (DSM-IV-R). For example, Scale 7 (Pt: Psychasthenia) is not a possible diagnostic category. Rather, the scale is said to reflect items pertaining to anxiety-related disorders with obsessive-compulsive features. Moreover, since these scales do contain a heterogeneous array of items, when scores are in the clinical range, the Harris-Lingoes Clinical Subscales should be reviewed to be able to make more

precise characterizations of a client's presenting problems. Therefore, when clinicians are reviewing profiles for interpretive purposes, it is important to examine not only the pattern of scores across the scales, but also the nature of the responses contained within the scales. Thus, the construct measured by the scale is only supported when the clinicians using the measure apply the instrument in the proper way (Butcher & Williams, 1992).

Very little research has been conducted on the clinical subscales in terms of their construct validity. Harris and Christiansen (cited in Archer & Krishnamurthy, 2002) found significant differences on eight Harris-Lingoes Subscales between patients judged successful versus unsuccessful in psychotherapy. Wrobel (cited in Archer & Krishnamurthy, 2002) investigated the concurrent validity of these subscales in terms of their ability to predict clinician's ratings of 85 adult outpatients. Clinician reports correlated with the subscales. Several researchers, however, have expressed concerns about Clinical Subscales Hy1 (Denial of Social Anxiety), Hy2 (Need for Affection), Pd3 (Social Imperturbability), Pa3 (Naiveté), and Ma2 (Psychomotor Acceleration). Archer and Huddleston (cited in Archer & Krishnamurthy, 2002) cautioned against using the Hy1 and Pd3 because the subscales could not exceed *T-scores* of 66 and 67, respectively. Others have noted that the Harris-Lingoes Scales should only be looked at for interpretation when there are marginal or clinically elevated scores on their respective parent scales (Archer & Krishnamurthy, 2002).

The Rorschach Inkblot Technique

Utility of projective techniques. Projective tests can provide measures of an individual's psychological functioning that cannot be ascertained from instruments such as interviews and rating scales. Projective techniques are representative of one's inner world, as well as behavioral and environmental influences upon the individual. In many cases, the demands of the testing situation provide a stage where traumatized children once again enact and repeat their terror, helplessness and their confused, fragmented sense of themselves and their worlds (van der Kolk & Ducey, 1989). Projective techniques enable those persons being assessed the freedom of reflecting whatever abuse effects might be discovered by the method, rather than forcing a response to a particular test item.

The Rorschach has been acknowledged as a valuable tool in examining the psychological features of children who have been abused or neglected because of its ability to unobtrusively measure a large number of personality dimensions (Clinton & Jenkins-Monroe, 1994). According to Exner and Weiner (1995), projection occurs because individuals "attribute characteristics to a stimulus field on the basis of their internal thoughts, feelings, or need states" (p. 4). Exner and Weiner contended that the Rorschach is a problem-solving task, rather than a projective instrument. Many of the published studies have utilized various scoring systems, with some object relations scoring systems, followed by the Exner scoring system, being among the most commonly used in research with children who have experienced various forms of traumas (Holaday, 2000). Viglione (1990) noted that regardless of the scoring system and interpretive

approach taken, it is very easy to underemphasize the life circumstances to which the child has been subjected. This can impede the differentiation between severe chronic disturbances as opposed to adaptive reactions to stress.

Development of the Rorschach. The Rorschach Technique consists of 10 inkblots presented one at a time with the prompt, "What might this be?" Following the initial presentation of all 10 cards, each is presented again. During the "inquiry" phase, the test administrator reads back all the responses and asks the respondent to describe the features or characteristics of the blot that were involved in his or her perception of a particular object (Exner, 2001).

The origin of the Rorschach Inkblot Technique dates back to 1911 when Herman Rorschach began experimenting with inkblots to examine personality characteristics. However, it was not until six years later that Rorschach began collecting data systematically in an effort to discern its ability to identify individuals according to their specific psychiatric groups. Rorschach originally included 40 cards, but eventually narrowed it down to 10 blots. In 1921, Rorschach published a monograph, "Psychodiagnostik," that described a preliminary scoring system that placed greater emphasis on features of responses rather than content analysis. For example, some of Rorschach's coding included a W when the respondent used the whole card, or D when large details were used. Other aspects of the original coding involved examining the responses for the use of form, color, or achromatic color, in describing why the examinee perceived the image to be a certain object. The coding system also included content

scoring, such as H for responses involving human figures, A for animal, and An for anatomy (Exner, 1993).

In addition to describing his coding scheme, Rorschach also contended that the inkblots he used could be utilized as a measure of personality. In 1922, Rorschach passed away at the age of 37, and since then others have attempted to identify alternate ways of scoring and interpreting the inkblots. In the 1960s, Exner began to write a comparative analysis of the five scoring systems in use for the inkblots. He concluded that none of the scoring systems appeared superior to the others. By 1969, Exner had published his first coverage of what became known as the Comprehensive System (CS). The CS combined the most stable features of the other five scoring systems and removed the most unreliable codes. The CS has been revised and updated several times, with the most recent update being released in 2001. Among the other major researchers and clinicians, Beck (1950), Hertz, (1951), Klopfer and Kelly (1942), Pitrowski (1957), and Rappaport, Gill, and Schaefer (1946) have been the most frequently referenced (cited in Exner, 1993).

The most updated CS normative sample was developed using 700 non-patient adults (stratified to represent the 1980 U.S. census), 1,390 children and adolescents, and patient reference groups of 320 diagnosed with Schizophrenia, 315 diagnosed with Depression, 440 non-specified diagnosed outpatients, and 180 outpatients with personality disorders (Exner, 2001). For each age group, 5 through 16, separate norms are available. Although the normative reference group data have been found to be representative of response characteristics of participants in other research studies, several

investigations have discovered Rorschach profiles that deviate from the standardization sample. Some have argued that the disparate findings challenge the accuracy of the descriptive data from the normative group.

The Comprehensive Scoring System (Exner's Scoring System). There are six main categories of response features scored in Exner's (2001) Comprehensive System. First, the location of the response is identified as being a whole-card response (W), a response utilizing a only a portion of the blot (D), or a smaller, more confined section of the blot (Dd), and if it includes White Space (S). Second, the response is assigned a Developmental Quality (DQ), which is an indication of the quality of the response as being either vague (v), a single object (o), or more than one interacting objects (+). Third, determinants are codes related to the respondent's use of human, animal, or inanimate movement (M, FM, or m, respectively), color (C), achromatic color (C`), shading, dimension (FD or V), and reflections (r). Fourth, Form Quality (FQ) refers to the degree to which the content of the response is suggested by the form of the blot. Fifth, the content of the response is categorized as involving humans, animals, fire, nature, clothing, x-rays, etc.

The sixth coding category involves special scoring that reflects atypical and possibly thought-disordered aspects of the responses. Content Special Scores are given to answers that involve the perception of aggressive movement (AG), cooperation between two objects (COP), damaged or dysphoric images, or the relation of the perceived object to one's own life (PER). Cognitive Special Scores are given to responses that may be indicative of an individual combining implausible percepts or percepts in an impossible

way. These categories include codes for unusual verbalizations (DV), irrelevant or tangential statements (DR), a preservative response (PSV), integration failure (CONTAM), and special color phenomena (CP). Appendix C contains a reproduction of a table from Exner (1993) listing the variables and the scoring criteria.

After the responses given for each card are recorded verbatim, the sequence of responses is tabulated and the responses are scored or coded. Several ratios can be calculated that are asserted to reflect aspects of an individual's cognitive mediational style, affective functioning, self-perception, and interpersonal style. There are also six constellation scores that contain individual variable scores and ratios. For these constellations, a cutoff score is used to determine the likelihood of an individual being characterized by the given trait. The constellations include: Perceptual Thinking Index (PTI), Suicide Constellation, Depression Index (DEPi), Obsessiveness Index, Coping Deficit Index (CDI), and the Hypervigilance Index (HVI; Exner, 1993). The variables that comprise these constellations and explanation of the relevant ones will be specifically addressed in the section relating to the discussion of the variables selected for this study. See Table 2 for a list and brief descriptions of the Rorschach variables. The interpretative statements were derived from Exner (2000) and Rose, Kaser-Boyd, and Maloney (2001). Also, see Appendix D for a reproduction of the Rorschach Structural Summary.

Table 2

Summary and Brief Description of the Rorschach Variables

Variables	Description
Lambda	The amount of energy put into responses
Ea	A sum of all potential resources, cognitive and emotional
es	Represents the sum of all the experienced stimulation or demands the person faces, both cognitive and emotional, especially the current situation
Adjusted Es	Represents a sum of all the demands the person faces, but removes state-dependent factors to assess the person's typical coping skills
Ebpervasive	An indicator of preferred problem-solving style
D	An indication whether a person typically has adequate resources to manage problems
Adjusted D	Assess whether a person's current circumstances are overwhelming his or her available resources
FM +m	Represents cognitive processes that are not necessarily conscious or controllable, and thus are like cognitive demands prompted by the situation
Sum of Shading Variables	Measures emotional processes that act essentially as demands on coping
SumC`	Represents affective restraint

Table 2

Continued

Variables	Description
SumV	Represents introspection associated with some pain or unhappiness or dissatisfaction
SumT	Represents closeness and empathy, or needs for attention and affection
SumY	Represents anxiety that is situationally caused
Form Dimension	Frequent dimensionality responses are associated with painful introspection and harshly critical self-attitudes
Color Determinants	FC represents the stable and controlled expression of some emotion; CF represents an emotion that just barely overcomes controls; Pure C indicates the client failed to modulate an impulse
Affective Ratio	Willingness to process emotional stimuli
Space	Degree of assertiveness or hostility
Blends	The complexity to which an individual approaches the task
Color Projection	If present, it signifies that the individual often denies the presence of irritating or unpleasant emotion or emotional stimulation by substituting an inappropriately positive emotion or emotional value to the situation
Cooperative movement (COP)	Movement response with a clearly positive or cooperative interaction; provides useful information about internal sets that a person may have concerning interactions among people

Table 2

Continued

Variables	Description
Aggressive movement (AG)	Movement response with current aggression [no past tense]; the person's interactions are likely to be forceful or even aggressive and hostile
Human Representational Variable	Represents whether an individual's view of others is positive or negative
Food	Signals the presence of a dependency orientation that can affect interpersonal relations
Human content	Degree of interpersonal interest
Personalized Response	Represents a form of defensiveness; reflects a need to be overly precise in defending one's self-image; insecure about personal integrity and may be argumentative when interpersonal situations appear to pose challenges to the self
Isolation Index	An indicator that an individual it may be withdrawn or alienated, or may at least have some difficulties related to social isolation
Intellectualization Index	Measures the degree to which an tends to deny the presence of affect, reducing the likelihood that feelings will be dealt with directly or realistically
Morbid Responses	View of one's body as weak or damaged
Special Scores	Denotes how often instances of mismanagement or slippage have occurred

Table 2

Continued

Variables	Description
Popular	Extent to which an individual conforms to social standards, and the relative ease with which they can be influenced in interpersonal relationships
Form Quality	Perceptual accuracy
Organizational Activity (Zf)	The relative extent to which a person efficiently and effectively organizes the disparate aspects of the inkblots
Processing Efficiency (Zd)	Gives information about the examinee's ability to process information in the environment with efficiency and accuracy
Human Movement	The extent to which persons are able to organize their inner lives
Animal Movement	Physical demand states
Inanimate Movement	An index of the extent to which persons are experiencing drives or life events that are beyond their ability to control
Preservative Response	Cognitive flexibility
Developmental Quality	Degree of cognitive efficiency
Egocentricity Index	Self-value; self-worth
Anatomy+X-ray	Bodily concerns
Perceptual Thinking Index	Suggests a greater likelihood of thought disturbance or distorted thinking
Depression Index	Aspects of personality that is characterized by excessive degrees of sadness and affective dysregulation

Table 2

Continued

Variables	Description
Coping Deficit Index	Assesses the existence of impoverished or unrewarding social relationships, difficulty contending with natural demands of the social world, ineptness in social situations, a sense of helplessness that can cause an individual to lose control (similar to those observed in overloaded situations), social immaturity, and questionable capacity for control (ability to form direct responses)
Suicide Constellation	An indication of suicidality
Hypervigilance Index	Interpersonal distrust or guardedness; uses considerable energy to maintain a relatively continuous state of preparedness; has origins in mistrusting attitude toward environment, feels vulnerable, does not expect closeness and often become suspicious about the gestures of closeness by others

Validity of the Rorschach. There has been a debate over the psychometric and clinical soundness of the Rorschach that has become very heated among several key researchers and others have joined the debate, particularly when critics of the Rorschach have disparaged their research. There are proponents of this instrument who argue that it has an empirical basis that has continually demonstrated adequate reliability, validity, and clinical utility (Weiner, 1996b). Weiner (1997) contended that the Rorschach could be used for four main purposes: describing personality, differential diagnosis, treatment planning, and behavioral prediction. The author noted that the Rorschach is effective in describing individual differences in personality structure, which was conceptualized as

"the nature of people as defined by their current frame of mind (personality states) and their abiding dispositions to think, feel, and act in certain ways (personality traits)" (p. 8). Thus, the Rorschach can be used to reveal ideational styles, patterns of interacting with others and the world, approaches for managing stress, ways of managing emotions and affective experiences, and attitudes towards oneself and others (Exner, 1993).

Despites its popularity and use in clinical settings (McCann, 1998), there are some who consider the Rorschach a completely invalid instrument that should never be included in any psychological evaluation (e.g., Dawes cited in McCann, 1998; Garb, Florio, & Grove, 1999), and that psychologists should particularly avoid its use for forensic evaluations (e.g., Garb, Wood, Lilienfeld, & Nezworski, 2002; Grove, Barden, Garb, & Lilienfeld, 2002; Lilienfeld, Wood, & Garb, 2001a; Wood, Nezworski, Garb, & Lilienfeld, 2001a). Some of the criticisms have included: lack of studies to cross-validate his findings (e.g., Archer & Krishnamurthy, 1997; Wood, Lilienfeld, Nezworski, & Garb, 2001; Wood et al., 2001a), failure to demonstrate construct and criterion validity (e.g., Lilienfeld, Wood, & Garb, 2001b; Wood, Lilienfeld, et al., 2001), failure to demonstrate incremental validity (e.g., Archer & Krishnamurthy, 1997; Garb, Wood, Nezworski, Grove, & Stejskal, 2001; Grove et al., 2002; Lilienfeld et al., 2001b; Wood, Nezworski, Stejskal, Garven, & West, 1999; Wood, Lilienfeld, Garb, & Nezworski, 2000), and poor scoring accuracy and low interrater reliability (e.g., Wood, Nezworski, & Stejskal, 1997).

There have been mixed reports pertaining to the Rorschach's efficacy in discriminating among individuals with different presenting symptoms. Some researchers have produced negative evidence that DEPi is useful in the classification of depression

(e.g., Archer & Gordon, 1988; Archer & Krishnamurthy, 1997; Ball, Archer, Gordon, & French, 1991), and several authors (e.g., Wood et al., 2000; Wood, Nezworski, Stejskal, Garven, & West, 1999) have contended that the CS does not adequately identify disorders commonly associated with childhood traumatic events, such as some personality disorders and Post Traumatic Stress Disorder (PTSD). Nonetheless, although the Rorschach was not designed to necessarily uncover experiential factors, through research it might be possible to identify factors that characterize circumscribed environmental events (Weiner, 2000).

MMPI-A and Rorschach Associations

Numerous empirical surveys have consistently identified the MMPI-A and the Rorschach as among the most commonly used assessment instruments in psychological evaluations (Archer & Newsom, 2000). However, although there have been more than 16,000 empirical publications that have addressed the clinical utility of the MMPI and the Rorschach, less than 1% have examined the interrelationships between them (Ganellen, 1996a). Among the studies that have been conducted, most of them have consistently failed to demonstrate significant relationships between MMPI-A scales and Rorschach variables that were purported to be measuring the same construct. In a 1993 review, 51% of 37 studies reported non-significant relations between these instruments. Twenty-one of these 37 studies included only the basic validity and clinical scales, 16 of which reported nonsignificant correlations (Archer & Krishnamurthy, 1993).

Investigators have proposed several reasons for this lack of 'convergent validity,' which was the premise for the majority of the studies. One explanation is that the MMPI

and Rorschach are two distinct measurements and should not be expected to correlate with each other (Viglione, 1996). Ganellen (1996c) proposed that the two instruments might capture two different aspects of the same condition. Accordingly, when a single scale explains multiple aspects of a criterion, then the two different instruments might both be related to the criterion variable, but may not be significantly correlated to each other (Ganellen, 2001). Therefore, using both instruments might increase the chances of identifying the presence of a psychological experience.

Another argument put forth by Meyer (1999b) is the potentially confounding effect of response style. He argued that the reason studies have failed to yield significant interrelationships is that they neglected to control for the number of responses (R) emitted by respondents on the Rorschach. The researcher further postulated that variables across the two instruments would only correlate when there is a high frequency of responses on the Rorschach. Accordingly, it was argued that R reflects a willingness of openness to report psychological disturbance and such openness would be maintained on a self-report measure.

Krishnamurthy, Archer, and House (1996) examined the extent to which MMPI-A scales related to conceptually similar Rorschach variables. Specifically, the study examined the relationships between similarly defined variables according to response frequency, as well as according to diagnostic category. In the study, 13 construct areas were selected, consisting of 28 MMPI-A scales and 13 Rorschach variables. The constructs examined included: anxiety, depression, somatic concern, obsessiveness, defensiveness, bizarre thinking, self-image, hypervigilance, coping ability, interpersonal

discomfort, disturbed conduct, poor impulse control, and treatment readiness/response. The researchers predicted that when R was ignored, the related constructs would not present with significant correlations. However, when the number of responses were controlled for, the relationships would be significant. Despite the authors' predictions, the analysis yielded very few relationships among the MMPI-A and Rorschach variables within the predetermined constructs.

Several researchers (e.g., Acklin, 1993; Weiner, 1999) have proposed that rather than examining the interrelationships between the MMPI and Rorschach, the instruments' incremental validity should be explored. Researchers broadly define incremental validity as the amount of new information a single test will add to the overall picture of an individual (Dawes, 1999). Incremental validity is generally assessed in statistical analyses by entering the scores from each instrument into separate 'blocks;' these serve as independent variables (the predictors). When the dependent variable (the variable that is being classified) is dichotomized (e.g., having or not having a particular disorder), the appropriate analysis would be a hierarchical logistic regression. If there are more than two categorical criterion variables, a hierarchical multinomial logistic regression is conducted. When the dependent variable is continuous, a hierarchical multiple regression analysis is performed. The statistical term that is garnered reflects the extent to which the variables from the first block contribute to the prediction of the dependent variable. The analysis then provides information in the form of a change in R-squared on how much the second block contributes to the prediction of the outcome above and beyond what the

first set of variables did (see Archer & Krishnamurthy, 1997; Dawes, 1999; Garb et al., 2001; Grove et al., 2002; Lilienfeld et al., 2001b; Weiner, 1999; Wood et al., 2000).

Despite the contention that both the MMPI and Rorschach are necessary instruments because they measure personality and psychopathology differently (e.g., Weiner, 1996a), several studies have not been able to provide for incremental validity in predicting various psychological disorders (e.g., depression, conduct disorder, etc.; e.g., Archer & Gordon, 1988; Archer & Krishnamurthy, 1997). It is important to note that most analyses have been run with the MMPI-A scales entered into the first block, followed by the Rorschach variables. Therefore, one would wonder what the outcome might be if the Rorschach variables were to be entered into the equation first. Then the question would be how much information does the MMPI scales add to the prediction above and beyond that of the Rorschach variables. Researchers do not have to necessarily make a choice as to which way they want to enter the factors, unless there is a conceptual reason for one of the measures being entered first. Therefore, two separate analyses could be performed; one with the MMPI entered first and another with the Rorschach variables entered first. Moreover, another extension of the use of the MMPI-A and the Rorschach would be moving beyond their application for diagnostic purposes and examining how these two instruments work together to capture the experiences of individuals with different maltreatment histories.

Summary and conclusions. Weiner (1998) has advocated for the use of both the MMPI and Rorschach in psychological evaluations. Acklin (1993) suggested that the Rorschach and MMPI could be integrated at the 'construct level.' Accordingly, the

researcher proposed that this integrative strategy could be conveyed in a psychological report by using separate sections to discuss affect, relationships, and symptoms. Sharing a similar perspective, Weiner (1996a) approaches his rational from a psychometric perspective. Accordingly, since both the MMPI and Rorschach yield a low number of false negatives, combining the two instruments minimizes both errors of commission and errors of omission; that is, integrating information from both serves to protect against making conclusions that something exists when it does not, or conversely, failing to recognize something that does exist.

Some clinicians have contented that the weak relationships between the two instruments support the idea that one of the two tests is more strongly related to specific criterion variables (e.g., clinical diagnosis, level of distress, particular personality characteristic, etc.) than the other (Wood, Lilienfeld, et al., 2001). However, Weiner (1996a) pointed out that each measure might be related to the criterion variable even if they are not related to each other. Thus, the researcher proposed that the two instruments might measure different aspects of the same construct. Nonetheless, it is important to keep in mind that the low to modest correlations are likely a result of the fact that the MMPI-A and the Rorschach are administered in two different response formats. Accordingly, higher correlations emerge when the same psychological construct is measured by two instruments using similar testing formats (i.e., if both had self-report response styles; Viglione, 1996).

Construct Approach to Variable Selection

Personality Constructs Inherent in the MMPI-A and Rorschach

Being able to accurately determine the impact of trauma on personality necessitates the use of valid instruments that are sensitive enough to accurately describe functioning in the aftermath of the maltreatment. Both the MMPI-A and the Rorschach have been described as measures of personality functioning. They each were developed to capture various aspects of personality structure. Those who use the MMPI-A and/or the Rorschach are ardent supporters that these instruments have clinical utility (e.g., Meyer, 2000; Weiner, 2000). However, empirical data utilizing the MMPI-A and/or the Rorschach to identify maltreated adolescents according to their pattern of response to these instruments or according to the specific type of their maltreatment is almost non-existent, albeit there have been some studies conducted on adolescents who have been sexually abused.

Weiner (1996a) suggested that investigations on the MMPI-A and Rorschach associations should be conducted using a construct methodology. Researchers could identify scales and variables from both measures related to a specific construct (Weiner, 1995). Furthermore, Ganellen (1996c) suggested that multiple scales measuring different aspects of the same construct be examined together, rather than relying on single scales for definitive information to induce a conclusion. Accordingly, the four constructs (i.e., the *Self-System, Affective Regulation, Cognitive Processes,* and *Interpersonal Relatedness*) have been identified as being measured by both the MMPI-A and the Rorschach (see Ganellen, 1994; Ganellen, 1996c; Weiner, 1996a). These constructs were

defined as: 1) *Self-System*: characterized as an individual's sense of overall self-worth, well-being, and personal safety; 2) *Affective Regulation*: represented by the degree of and quality of emotional awareness and emotional control; 3) *Cognitive Processes*: determined by examining an individual's reality testing, efficiency of information processing, and engagement in cognitive activities; and 4) *Interpersonal Relatedness*: which includes social interest variables and information related to the quality of interpersonal relationships (Bridges et al., 1998). It is important to note that in some cases there are scales or variables that appear across more than one construct. In such cases, the scale or variable was identified as measuring one aspect of a particular construct, but it also loaded onto a factor or constellation that was presented under one of the other constructs. This occurrence points to the complexity in identifying the constructs, as well as the interplay between different areas of functioning.

Overall, it would be expected that individuals who have experienced multiple and more severe forms of maltreatment would be identified by both higher elevations in scores, as well as by more elevations across indices. Moreover, since both instruments are often used together as part of the psychological test battery, it would be important to first address whether or not either instrument is effective in accurately describing the functioning of individuals with different maltreatment experiences.

The Construct of the Self-System

Theoretical framework. Bonime (as cited by Price, 1994) defined the self as "a complex affective-sensate-cognitive phenomenon experienced in the course of functioning. Self is ineffable and private. It is a subliminal feeling of a particular person

in an experience, a vague sense of a me involved actively or passively, alive somehow in relation to others" (p. 21). The concept of the *Self-System* dates back to 1953 when Henry Stack Sullivan introduced it as a mechanism that incorporates an individual's perception and experience of his or her biological and psychosocial characteristics, including the sense of physical integrity, self-worth, and personal security. Research has suggested that it is quite common for young children to overestimate or inflate their perceptions of competence and support. As they mature into middle childhood and early adolescence, these two complementary dimensions tend to become more realistic and consonant with the perceptions of significant others, such as parents, teachers, and peers (Edens, 1999).

Attachment theorists have focused considerable attention on the development of the self-system. Bowlby (cited in Edens, 1999) identified two complementary and evaluative aspects of the self-system in seeking to explain the quality of attachment relationships. The child sets a value on his or her worthiness of comfort and protection based upon the experience of how his or her needs are met, in particular by the primary attachment figure. Then, the child develops a sense of how others, especially his or her primary caretaker(s), will respond to those needs. Positive attachment experiences are believed to foster the development of the self as valued and lovable and the caregiver as attentive and supportive. Nichols (1992) reiterated this perspective when he emphasized that respect for oneself is tied to parental attunement. The theorist further noted that self-esteem "takes root in the elemental physical experience of the infant, when the reliable satisfaction of biological needs builds basic trust" (p. 130).

Herman (1992) discussed the development of self-view within the context of trauma. Although the theorist primarily focused on children who experienced neglect, she also extended her concepts to those who experienced other forms of maltreatment. According to her view, severe and chronic abuse leads to the development of self-representations tainted by altered, damaged, and distorted perceptions of the self and others. Jacobs, Bleeker, and Constantino (2003) wrote about the impact of abuse on the *Self-System*. The authors noted that youth who are frequently criticized and rejected (i.e., emotionally maltreated) by their primary caregivers are more likely to have difficulty forming positive identities and feeling confident in their own abilities.

Several researchers have found that the effect of maltreatment upon the *Self-System* is pernicious. For instance, teachers have been found to be more likely to rate children who had been maltreated as having poor self-esteem and more negative self-concepts than children who had not been maltreated (e.g., Bolger et al., 1998; Cicchetti & Rogosch, 1997). Briere and Runtz (1990) noted that emotional maltreatment was related to lower self-evaluations, which the authors attributed to the child's internalization of parental statements (e.g., psychological attacks and criticism by one's parent) as a basis for self-perception.

MMPI-A Scales related to the Self-System. The MMPI-A contains multiple scales that can be used to examine an individual's *Self-System* (see Table 3). At the factor level, Factor 5: Health Concerns (described below) contains scales that primarily pertain to views of oneself as dependent and possessing lower levels of competence, as well as being overly concerned with health and physical functioning. Content Scale Adolescent-

Low Self-Esteem (A-lse) and Clinical Subscales Ma4 (Ego Inflation) from Scale 9 (Ma: Mania) and Si3 (Alienation of Self and Others) from Scale 0 (Si: Introversion) are the individual scales that have been selected to be part of the analyses related to the *Self-System*. Factor 5: Health Concerns includes Clinical Scales 1 (Hs: Hypochondriasis) and 3 (Hy: Hysteria), Content Scale Adolescent-Health Concerns (A-hea), and Clinical Subscales Hy3 (Lassitude-Malaise) and Hy4 (Somatic Complaints) from Scale 3 (Hy: Hysteria) and D3 (Physical Malfunctioning) from Scale 2 (D: Depression).

Clinical Scale 1 (Hs: Hypochondriasis) consists of 32 items that measure excessive concern over poor health and somatic functioning. Elevated scores suggest a greater preoccupation with health than the typical teenager, including even those with known illnesses. Clinical Scale 3 (Hy: Hysteria) consists of 60 items that measure admission of specific somatic complaints. Elevations are indicative of adolescents who react to stress with physical symptoms, and who are unpredictable, dependant, and passive. Content Scale A-hea encompasses 37 items related to physical symptoms and complaints of tiredness and fatigue. Adolescents with high scores on this scale typically report numerous problems that interfere with their enjoyment of after-school activities and that contribute to significant school absence.

Among the Harris-Lingoes Clinical Subscales on Factor 5: Health Concerns, Hy3 (Lassitude-Malaise) contains 15 items that reflect problems associated with physical and mental health, Hy4 (Somatic Complaints) uses 17 items to assess the nature of physical ailments, and D3 (Physical Malfunctioning) consists of 11 items pertaining to concerns and preoccupation with physical health. High scores on Hy3 (Lassitude-Malaise) indicate

perceptions of oneself as weak and unhealthy, high scores on Hy4 (Somatic Complaints) indicate multiple corporeal complaints, and high scores on D3 (Physical Malfunctioning) denote a high degree of physical ailments (Butcher & Williams, 1992).

Content Scale A-lse is comprised of 18 items that capture an individual's opinion of himself or herself. It is elevated when individuals possess poor self-esteem or self-confidence, feelings of inadequacy, interpersonal passivity, discomfort, and withdrawal (Williams et al., 1992). Clinical Subscale Ma4 (Ego Inflation) is comprised of 9 items that denote feelings of self-importance. Elevations suggest the possibility of grandiosity and egotism. Clinical Subscale Si3 (Alienation of Self and Others) contains 17 items measuring an individual's self-perception. It is elevated when individuals possess low self-esteem and poor self-concepts, are self-critical and lack confidence in the judgment of others (Archer, 1997b).

Self-System (as measured by the MMPI-A) and maltreatment. The area of the *Self-System* as measured by the MMPI-A appears to be a relatively unchartered domain, particularly in relation to maltreatment. Moreover, Factor 5: Health Concerns has not been heavily researched with regards to relations among the factor and outcome variables. However, some of the scales contained on the factor have been examined in relation to childhood abuse. Forbey et al. (2000) examined differences in scores on MMPI-A clinical and content scales among adolescents in a residential treatment facility according to whether or not the adolescents experienced sexual abuse. The scales included in the study that were related to the *Self-System* were: Clinical Scales 1 (Hs: Hypochondriasis), 2 (D: Depression), 3 (Hy: Hysteria), 9 (Ma: Mania), and 0 (Si: Social

Introversion) and Content Scales A-hea and A-lse. Content Scale A-lse and Clinical Scales 2 (D: Depression) and 0 (Si: Social Introversion) were significantly more elevated among individuals with a sexual abuse history, regardless of gender. The other scales (i.e., Clinical Scales 1, 3, and 9; Content Scale A-hea) did not differ according to abuse with the p-value set at .003.

In a comparison of correlates of the content scales among males and females in the normative sample to correlates of the content scales among males and females in a clinical sample, Williams et al. (1992) found no significant relations between the occurrence of physical or sexual abuse and A-hea within either the normative or clinical groups. A-lse was related to a history of sexual abuse among adolescents in the clinical sample. Hillary and Schare (1993) examined the effects of maltreatment on adolescent psychopathology. The researchers reviewed MMPI profiles of adolescent boys who had been sexually or physically abused and were living in a group home. None of the clinical scales were elevated despite the fact that they presented with many clinical symptoms, including PTSD symptoms. The authors postured that the lack of elevations may have been due to guardedness on self-report measures.

Scott and Flowers (1988) examined differences in the MMPI profiles of adolescents who had been molested according to whether or not they believed that their mothers (the non-offending parent) knew of the abuse. The researchers found that adolescents who believed their mothers knew of the incest during its occurrence had higher scores on Scales 1 (Hs: Hypochondriasis), 3 (Hy: Hysteria), and 9 (Ma: Mania) than adolescents whose mothers did not know of the incest. The researchers pointed out

that parental knowledge of abuse being perpetrated by another person in a caregiving role carries with it failure to protect (potentially qualifing as *Neglect*) as well as rejection (potentially meeting the criteria for *Emotional Maltreatment*).

There have been a few studies in the adult literature that used the MMPI to evaluate the impact of childhood abuse. Roland et al. (1985) conducted a discriminant function analysis on the MMPI Basic Scales of women treated in an outpatient clinic; Clinical Scales 1 (Hs: Hypochondriasis) and 3 (Hy: Hysteria) were among the scales that accurately identified 73% of women who had reported childhood experiences of sexual abuse. The other scales (i.e., Scales 2 (D: Depression), 9 (Ma: Mania), 0 (Si: Social Introversion) were not as salient in predicting whether or not the women had been abused.

Griffith et al. (1997) compared the MMPI-2 basic scale profiles of women according to their sexual abuse history and sexual orientation. The researchers found that higher scores on Scales 1 (Hs: Hypochondriasis) and 2 (D: Depression) were characteristic of women with a history of sexual abuse; however, the study failed to find a difference in Scales 3 (Hy: Hysteria), or 9 (Ma: Mania), or 0 (Si: Social Introversion) based on abuse history. Noteworthy, however, was the fact that even though women with sexual abuse histories had higher scores on Scales 1 (Hs: Hypochondriasis) and 2 (D: Depression) compared to the nonabused group, the mean *T-scores* for the abused group were not clinically elevated.

Scott and Stone (1986) examined effects of incest during childhood on women using the MMPI basic scales. The researchers did not find the scores on Basic Scales 1 (Hs: Hypochondriasis), 3 (Hy: Hysteria), 9 (Ma: Mania), or 0 (Si: Social Introversion) among the abused women to be more elevated compared to the scores of the father or stepfather perpetrators or non-abusing mothers. However, they were more likely than the parental groups to obtain 3-4/4-3 and 8-9/9-8 codetypes, indicating that Clinical Scale 3 (Hy: Hysteria), in conjunction with Clinical Scale 4 (Pd: Psychopathic Deviate) was more often elevated among daughter victims, as was Clinical Scale 9 (Ma: Mania), in conjunction with Clinical Scale 8 (Sc: Schizophrenia).

Lucenko et al. (2000) used the MMPI-2 clinical scales to determine the effects of the way in which the perpetrator manifested the sexual abuse. Participants were adult women grouped according to: whether 'force' had been used to abuse them, which was determined by the use of verbal threats, physical restraints, or physical assault; whether 'bribes' (i.e., offered gifts or rewards) were used; if the victims were subjected to both forms of coercive strategies; or if neither of the deceptions strategies had been used[2]. There were no differences on the four clinical scales reviewed in this section: [i.e., Clinical Scales 1 (Hs: Hypochondriasis), 2 (D: Depression), 3 (Hy: Hysteria), or 9 (Ma: Mania)]. The groups did not differ on variables such as frequency of abuse, type of

[2]In the current study, either threats or restraints would have also been coded as *Emotional Maltreatment*. *Sexual Abuse* involving restraints or physical force would have been assigned a severity rating of 5. If there was injury to the child, a code of *Physical Abuse* may have also been assigned. Although bribery was not specifically addressed in the coding, but could have been coded with a severity rating of 5 (instead of 4) or as *Moral Neglect*, if it was directly stated that a parent prostituted their child, or as *Emotional Maltreatment* if it could be discerned that an adult was putting the child in the role of a significant other (i.e., 'role reversal'). *Sexual Abuse* in the absence of some type of force would have been assigned a severity rating 1-4, depending on the nature of abuse; intercourse without force is given a 4.

intercourse (anal or vaginal), physical abuse accompanying the sexual abuse, and age at onset of abuse. Thus, the researchers noted that these other variables did not account for the victims' difficulties, and bribery contributed to long-term psychological problems.

Prediction of MMPI-A findings related to the Self-System. The two studies that included A-lse found elevations to be indicative of sexual abuse. Therefore, it would be expected that this content scale be strongly related to the experience of sexual abuse, and that higher scores would be associated with more severe sexual abuse. Moreover, given the theoretical (e.g., Herman, 1992) and empirical support linking poor self-esteem as an outcome of maltreatment, it is also predicted that scores on A-lse would incrementally increase according to the number of maltreatment subtypes an individual has endured.

Table 3

MMPI-A Scales Related to the Self-System

MMPI-A Scales
Factor Five: Health Concerns
Scale 1, Hypochondriasis (Hs)
Scale 3, Hysteria (Hy)
Adolescent Health Concerns (A-hea)
Hy3: Lassitude-Malaise
Hy4: Somatic Complaints
D3: Physical Malfunctioning
Adolescent Low Self-Esteem (A-lse)
Ma4: Ego Inflation
Si3: Alienation of Self and Others

Rorschach variables related to the Self-System. Rorschach variables that pertain to how individuals perceive themselves and how they view themselves and their part in the world include: 1) the sum of the content codes of Anatomy and X-ray (An+Xy); 2) the number of responses that are assigned a special score of Morbid (MOR); 3) the Sum of Vista responses (SumV: FV + VF + V); 4) the number of responses with the determinant of Form Dimension (FD); 5) the Egocentricity Index; and 6) the number of responses that are assigned a special score of Personal (PER; see Table 4).

Anatomy (An) is a content code that is assigned when a response includes skeletal, muscular, or internal anatomy, whereas X-ray (Xy) is coded for any response that involves something that is observed as an X-ray. When the sum of An and Xy is equal to or greater than two, there is a likelihood that the individual has a preoccupation with his or her body (Hughes, Deville, Chalhoub, & Romboletti, 1992). MOR is a special score assigned when the examinee describes a response that either contains something that is dead, hurt, or shattered or incorporates feelings of sorrow, hopelessness, or melancholy. A greater occurrence of Morbid responses in a protocol generally reflects a pessimistic outlook on life (Exner, 2001).

Two other variables, SumV (FV+VF+ V) and FD, are both useful in ascertaining the extent to which one is engaging in self-inspecting behaviors (Weiner, 1998). Vista is coded when the response indicates that shading is used to make depth. SumV tends to increase at 12-years-old through adolescence, but in older adolescence, it becomes comparable to that of non-patient adults. FD is coded when the examinee creates depth without the use of shading. FD responses are found in approximately 66% of protocols for children ages 10 through 16; therefore, one FD determinant is not atypical in a protocol. Rorschach protocols that contain more than one Vista response and/or more than two FD responses represent introspection associated with some pain or unhappiness or dissatisfaction and harshly critical self-attitudes (Exner, 1993).

The Egocentricity Index is computed by adding together all the responses that include a pair (two identical objects or images) with three times the number of reflection responses (Fr or rF). Reflections are responses in which the examinee makes clear that

the percept is something and "its" reflection. For adolescents, the typical Egocentricity Index values range from .33 through .45. An index lower than .33 denotes the probability that an individual has negative self-worth, whereas an Egocentricity Index value above .45, when accompanied by reflection responses being greater than zero, signals the presence of the tendency to overvalue personal worth (Exner, 1993). Research has demonstrated that reflection responses usually disappear in adolescence when formal operations begin and social relationships take on new importance. However, the presence of such self-centered features can impair the development of a mature balance between a healthy self-integrity and the integrity of others (Belter, Lipovsky, & Finch, 1989; Exner, 1991).

The special content score of a Personalized Response (PER) is assigned when a person refers to personal knowledge or experience as part of the basis for justifying or clarifying a response. When the protocol contains two or more PER, it represents a form of defensiveness whereby the individual has some need to be overly precise in defending his or her self-image. Exner (1991) reported that 81% of 15-year-olds had at least one PER; however, only 8% of the protocols contained more than one.

Self-System (as measured by the Rorschach) and maltreatment. The literature contains very little information pertaining to Rorschach assessment of self-view of children with other maltreatment histories besides sexual abuse. Shapiro, Leifer, Martone, and Kassem (1990) found that children ages 5-16 (m = 8.9) who had been sexually abused had a higher proportion of Morbid (MOR) responses than did individuals who were being seen as outpatients or who were hospitalized for physical illnesses, but did not

have a history of sexual abuse. In contrast, SumV and the Egocentricity Index were not found to differ between children with sexual abuse histories from the control sample, although there was a trend for SumV to be more elevated among sexually abused children.

Zivney et al. (1988) examined the Rorschach protocols of 80 females who had been sexually abused prior to 9-years of age and the protocols of 43 females who had been sexually abused after they turned 9-years-old. The protocols of both groups were compared to each other, as well as to the responses of 72 youths from a community mental health center, which served as the control group. The *Self-System* variables examined in the study were: An+Xy, MOR, SumV, and PER. Zivney et al. found that children who had been sexually abused during their early development were more likely to have more MOR in their protocols, in conjunction with PER. They also found that children who had a history of childhood sexual abuse, with an onset prior to age 9, gave significantly more X-ray and Anatomy responses, compared to those who experienced abuse later in their development, and those who did not have a history of sexual abuse.

Nash, Zivney, et al. (1993) aggregated six Rorschach variables of which MOR was included to create an impairment index. The researchers found that certain sexual abuse characteristics were related to more pathology as evidenced by the Rorschach. Specifically, the intensity and frequency of the abuse was related to greater maladjustment, regardless of how long the abuse had occurred.

Holaday et al. (1992) compared Rorschach responses of traumatized children from latency age through adolescence to Exner's published norms. The types of trauma

(each occurring prior to age 9) included rape, sexual molestation, incest, severe beatings, or accidents that required hospitalization. Two variables that fall under the construct of the *Self-System* in this study, the Egocentricity Index and MOR, were examined. The traumatized group had significantly lower Egocentricity Index values compared to the normative group, but they did not have more MOR in their protocols. In another Rorschach study (Holaday & Whittenberg, 1994), burn victims were compared to the normative group on the Egocentricity Index, SumV, and MOR. Seventy percent of the children and adolescents had Egocentricity Index values that were more than one standard deviation below the mean, 44% had higher SumV, and 24% of the protocols contained more MOR. Additionally, children had significantly lower Egocentricity Index values and higher SumV compared to adolescents. Moreover, SumV was higher among individuals with more recent burns (i.e., less than 5 years old) compared to individuals who had been burned more than five years from the time of testing. In a follow-up with 20 of the original participants ranging in age from 10 through 22, Holaday (1998) reported that the Egocentricity Index continued to differentiate individuals who had been traumatized from the normative group. Since most of the individuals who had been followed up had not provided Vista responses during the initial administration, comparisons on the longitudinal effects of trauma could not be made on that variable.

Holaday (2000) compared the Egocentricity Index and MOR of children and adolescents diagnosed with Posttraumatic Stress Disorder (PTSD) to the Rorschach protocols of children diagnosed with Oppositional Defiant Disorder (ODD). Both groups had significantly lower Egocentricity Index values and greater MOR compared to the

normative data, but they did not differ from each other. Thus, the researcher noted that these variables might not be effective discriminators of individuals with PTSD from disruptive behavior disorders, such as ODD. However, both the Egocentricity Index and MOR could be viewed as sources of information regarding symptoms resulting from heterogeneous traumatic experiences.

In a study comparing adult clients with either known histories of sexual abuse, suspected histories of sexual abuse, or no histories of sexual abuse, Kamphuis et al. (2000) examined the Trauma Content Index (TC/R), which is comprised of several Rorschach variables including content code Anatomy and special score MOR. The researchers also included PER, but predicted that this special score would not be an effective discriminator of sexual abuse history. Participants with known histories of sexual abuse scored significantly higher on the TC/R than did individuals with no such histories. There were no differences between the groups on the frequency of special score PER. The data further supported a strong correlation between the presence, frequency, and severity of the sexual abuse and the TC/R. There were no significant correlations between the TC/R index and age of onset of sexual abuse, intensity of violence involved, degree of sexual involvement of the abuse (e.g., penetration vs. fondling), and whether the perpetrator was a family member.

Nash, Hulsey, Sexton, and Harralson (1993) compared Rorschach responses from four groups of women: women from an outpatient clinic with a history of sexual abuse, women from the same clinic without a history of sexual abuse, women from the general community who had been sexually abused, and women from the community without

sexual abuse histories. The researchers found greater impairment on what they termed the "self-perception" cluster (which included An+Xy, MOR, FD, SumV, and the Egocentricity Index) among individuals who had been sexually abused, regardless of mental health history. However, the researchers also noted that family pathology accounted for much of the variance in the findings.

Rorschach responses among 22 women who murdered their domestic male partners after having experienced domestic violence in that relationship for several years prior to the killing supported the absence of the Vista and FD determinants and lower Egocentricity Index values (Kaser-Boyd, 1993). Although this study suggested that women who had been battered engaged in less introspection (SumV and FD = 0) and had lower self-worth (Egocentricity Index), it is important to keep in mind that not only was this an adult sample, but also these women had killed the perpetrator. Thus, their Rorschach responses may have been reflecting responses of individuals who had committed a homicide, rather than traumatized individuals. Nonetheless, 55% of the sample perceived that their life was in danger at the time they killed their partner and the remaining participants had endured chronic abuse. Hartman et al. (1990) examined the Rorschach protocols of 41 veterans. The authors did not find any differences on the *Self-System* variables of Anatomy and Morbid between the military men who had been traumatized and the normative data.

Some dissertation studies have also examined bodily concerns and self-image among maltreated populations. Bank (2001) found that the Egocentricity Index was significantly lower among individuals who had been sexually abused than the

Egocentricity Index of individuals who had not been sexually abused. Bank (2001) also found there to be more Anatomy and X-ray responses among adolescents from a juvenile detention center compared to the control group from the same facility. Black (2003) did not find An+Xy to differ between 46 sexually abused children in a residential treatment setting and 51 non-abused children in the same facility.

Talbott (2001) conceptualized variables, such as X-ray+Anatomy, the Egocentricity Index, and Morbid responses, as making up a 'Self-Experience' construct. The researcher's dissertation included a sample of children ages 7 to 11 who had either been physically abused, neglected, both abused and neglected, or not maltreated. The values for each of the variables were analyzed according to whether they 'impaired or 'not impaired'. Impairment was defined as being more than one standard deviation above or below the normative value. The researcher found that children who had been physically abused produced significantly more Morbid, X-ray, or Anatomy codes compared to children who had not been maltreated; neglected children and non-maltreated youth did not differ on these variables. Moreover, children who had been multiply maltreated produced Morbid, X-ray, or Anatomy significantly more often than did individuals who had only experienced neglect, but not in comparison to children who had only experienced physical abuse. Individuals who had been physically abused were more likely to have MOR, X-ray, or Anatomy in their protocols compared to individuals with neglect histories. The Egocentricity Index did not differ based on individuals' maltreatment experiences (i.e., multiple vs. single forms of maltreatment; physical abuse vs. neglect). However, it is important to note that, similar to Bank's (2001) data, even

individuals who had not been maltreated had Egocentricity Index values below the normative value.

Prediction of Rorschach findings related to the Self-System. These studies suggest that certain Rorschach variables are more sensitive to particular features of a trauma or maltreatment experience. Thus, whether or not variables related to the maltreatment subtype depended on the exact measurement as well as the attributes (e.g. duration, severity, etc.) being examined. Accordingly, Talbott (2001) found a greater sum of An+Xy among individuals who had experienced multiple forms of maltreatment as well as who had been physically abused, Bank's (2001) dissertation found more An+Xy on protocols of adolescents who had been sexually abused compared to adolescents without such histories, and Zivney et al.'s (1988) investigation supported a higher prevalence of these content codes among individuals who experienced sexual abuse earlier in their development as compared to later onset sexual abuse. Certainly, the latter study underscores the importance of considering age of onset. Nonetheless, as An+Xy has been viewed as indicating a disconcerting sense of vulnerability of body or self-image, it is believed that rumination about bodily concerns would vary according to the number of maltreatment experiences, the severity of physical abuse, and the severity of the sexual abuse.

Furthermore, because most of the research supports a higher number of MOR in protocols of youth who have been abused, both sexually (e.g., Leifer et al., 1991; Shapiro et al., 1990) and physically (e.g., Talbott, 2001), it is possible that the number of MOR would not only be related to the severity of both of these forms of abuse, but also a

greater occurrence of this special score could be indicative that an individual has experienced more maltreatment subtypes (e.g., Talbott, 2001).

Table 4

Rorschach Variables Related to the Self-System

Rorschach Variables
Sum of Anatomy and X-ray responses (An+Xy)
Morbid Responses (MOR)
SumV (FV+VF+V)
Form Dimension (FD)
Egocentricity Index
Personal (PER)

The Construct of Affective Regulation

Theoretical framework. *Affective Regulation* refers to conscious and unconscious ways in which individuals control their emotional experiences in order to meet certain goals (Thompson, 1994). The construct of *Affective Regulation* has also been referred to as 'emotion regulation,' 'emotion self-management' or 'affect modulation;' these terms reflect a process that strives to maintain optimal levels of emotional stability (Kokkonen & Pulkkinen, 1999). Three features are thought to constitute healthy emotion regulation: (a) experiencing a full range of emotions, (b) modulation of emotional experience, and (c) appropriate display of emotion (Gross cited in Paivio & Laurent, 2001).

Investigations on the regulation process have revealed that successful acquisition and application of emotion regulation strategies is dependent upon the situation

(Eisenberg et al., 1995), arousal threshold (Catanzaro, 1997), behavioral disposition (Kagan, 1994), and competency in using regulatory skills (Eisenberg, Fabes, Nyman, Bernzweig, & Pinuelas, 1994). A critical feature of the regulation process is the ability to alter or reduce painful feelings without major reliance on avoidance (Kokkonen & Pulkkinen, 1999). Humans who are efficacious in the *Affective Regulation* process orient their attention to appropriate stimuli and engage in behaviors that modulate their level of arousal and emotional reactivity (Stifter, Spinrad, & Braungart-Rieker, 1999). Conversely, some individuals prone to dysregulation dissociate from their emotional experience, which can lead to distorted emotional processing and faulty emotion recognition, whereas others do not, or cannot, withdraw themselves from, or may even move toward, other people or events, which intensifies their emotional arousal (Dodge, 1991).

Attachment theorists and researchers have emphasized that the establishment of a secure attachment bond is the foundation upon which children become competent in regulating their own emotions. By attending to the child's basic needs (i.e., food, protection, touch, and soothing), the caregiver establishes the state of the child's inner world. In addition, it is the caregiver who provides the child with appropriate stimulation so as to facilitate the child's connection with the outside world. It is the external support of the caregiver that sets the stage for the child to acquire the ability to self-regulate his or her own emotions, as well as learn to interact positively with others and the environment (Paivio & Laurent, 2001).

Cicchetti and Toth (1995) theorized that early maladaptive interactions impact how abused and traumatized children continue to manifest insidious problems with affective regulation. These authors emphasize that early disruptions in the maturation of affective regulation are tied to disruptions in the caregiver-child relationship (Cole, Michel, & Teti, 1994). van der Kolk (1985) is a leading theorist in the field of trauma. Although van der Kolk (1985) primarily focused on Post-Traumatic Stress Disorder (PTSD), in general, if children who have been abused or neglected do not meet all of the diagnostic criteria, they display many of the symptoms (van der Kolk & Ducey, 1989). According to van der Kolk's theory of trauma, children who are maltreated tend to vacillate between states of under-arousal, or hypo-awareness and states of over-arousal, or hyper-awareness. When under aroused, children may cope with their traumatic histories by suppressing painful emotions, which promote emotional constriction (Shields & Cicchetti, 2001). Such states of under-arousal serve a protective function for children, as they are able to remain psychologically distant from traumatic memories, and thus, avoid re-experiencing emotions attached to those memories. In contrast, when children are over aroused, they display intense emotionality, react strongly to internal and external stimulation, and have difficulty controlling their behaviors (van der Kolk, 1985).

MMPI-A scales related to Affective Regulation. MMPI-A content scales that are associated with emotional awareness and control include (see Table 5): Adolescent Anxiety (A-anx), Adolescent Obsessiveness (A-obs), Adolescent Depression (A-dep), and Adolescent Anger (A-ang). The MMPI-A clinical subscales pertaining to the construct of *Affective Regulation* include: Subscales D1 (Subjective Depression) and D5

(Brooding) from Scale 2 (D: Depression), Sc5 (Lack of Ego Mastery-Defective Inhibition) from Scale 8 (Sc: Schizophrenia), and Pd5 (Self-alienation) from Scale 6 (Pd: Psychopathic Deviate).

Content Scale A-anx contains 21 items that represent symptoms of anxiety. High scores reflect an individual who is anxious, tense, and nervous, has problems with inattentiveness, and has poor stamina and is easily emotionally drained. Content Scale A-obs consists of 15 items reflecting excessive worrying. High scores suggest a high degree of rumination, difficulty in making decisions, the occurrence of intrusive thoughts, and problems in concentration. Content Scale A-dep contains 26 items that represent symptoms of depression. Elevations signify high degrees of sadness, depression, lethargy, and indifference, as well as a persistent sense of despair that may include suicidal ideation. Content Scale A-ang is comprised of 17 items measuring an individual's ability to control his or her anger. High scores represent a person who has a hostile attribution, is irritable, impatient, has difficulties managing his or her anger, and has the potential to be physically aggressive (Williams et al., 1992).

Subscale D1 (Subjective Depression) from Scale 2 (D: Depression) contains 29 items assessing the perception of oneself as depressed. Elevations indicate feelings of unhappiness, guilt, anhedonia (lack of energy and interest in everyday activities), problems with concentration and attention, and self-critical attitudes. Subscale D5 (Brooding) from Scale 2 (D: Depression) is made up of 10 items. High scores reflect individuals who have feelings of hopelessness and sadness, exhibit apathy and sluggishness, and who are very sensitive to criticism. Subscale Sc5 (Lack of Ego

Mastery-Defective Inhibition) from Scale 8 (Sc: Schizophrenia) contains 11 items measuring the degree of control over one's emotions. Individuals with high scores report strong emotional reactivity, impulsivity, agitation, irritability, hyperactivity, and dissociative experiences. Subscale Pd5 (Self-alienation) from Scale 6 (Pd: Psychopathic Deviate) is comprised of 12 items. High scores signify emotional distress, and strong feelings of guilt, regret, and remorse (Archer, 1997b).

Affective Regulation (as measured by the MMPI-A) and maltreatment. The *Affective Regulation* variables that were included in the study conducted by Forbey et al. (2000) were A-anx, A-obs, A-dep, A-ang, and Clinical Scales 2 (D: Depression), 4 (Pd: Psychopathic Deviate), and 8 (Sc: Schizophrenia). A-dep was the only content scale from this group to differentiate adolescents who had been sexually abused from those who had not been sexually abused. A-anx and A-ang did not differ at $p < .003$, and A-obs did not differ at $p < .05$. All three clinical scales were significantly more elevated among adolescents with a history of sexual abuse. Williams et al. (1992) did find significantly higher elevations on A-dep among males in the clinical group who had been sexually abused. Williams et al. (1992) also found elevations on A-ang among both males and females who had histories of sexual abuse. Additionally, higher scoring males from the clinical group were more likely to have been sexually abused compared to lower scoring males in the same group. There were no differences in either the normative or the clinical group based on abuse history on A-anx or A-obs.

Data from a study comparing MMPI profiles of two groups of adolescents (i.e., adolescents with sexual abuse histories and adolescents with clinical histories) supported

that adolescent females who had been sexually abused as adolescents had significantly higher scores on Clinical Scales 4 (Pd: Psychopathic Deviate) and 8 (Sc: Schizophrenia); the groups did not differ on Clinical Scale 2 (D: Depression; Holifield et al., 2002). Hillary and Schare (1993) did not find elevations on Clinical Scales 2 (D: Depression), 4 (Pd: Psychopathic Deviate), or 8 (Schizophrenia) among adolescent boys who had been either sexually or physically abused and were living in a group home.

The findings with adult samples with histories of childhood maltreatment are similar to those of the adolescents. Engels et al. (1994) compared MMPI profiles of women who reported a history of sexual abuse, physical abuse, both sexual and physical abuse, or no abuse. All participants, regardless of abuse history, had elevations on Scale 2 (D: Depression), but women with histories of both sexual and physical abuse had higher elevations on Scale 4 (Pd: Psychopathic Deviate) and Scale 8 (Sc: Schizophrenia) than the 'no abuse' group and the 'sexual abuse only' group. Moreover, a combined history of sexual and physical abuse was the best predictor of elevations on Scale 4 (Pd: Psychopathic Deviate).

Goldwater and Duffy (1990) reported that the Scarlet O'Hara V, a pattern that reflects individuals who are hostile and angry but are unable to express their feelings, could be used to generate hypotheses that childhood abuse has occurred. This pattern is represented in part by an elevated score on Clinical Scale 4 (Pd: Psychopathic Deviate). Women who had been both physically and sexually abused were more likely than women who had experienced only one form of abuse or had not been abused to have this pattern in their protocols. The researchers further speculated that higher scores on Clinical Scales

2 (D: Depression) and 8 (Sc: Schizophrenia) were also suggestive of childhood abuse histories as there was a higher rate of elevations on these scales among individuals containing the Scarlet O'Hara V on their protocols.

Griffith et al. (1997) identified Clinical Scales 2 (D: Depression), 4 (Pd: Psychopathic Deviate), and 8 (Sc: Schizophrenia) as being significantly more elevated among women with histories of sexual abuse compared to women without histories of sexual abuse. Lucenko et al. (2000) found that the sexually abused individuals who had been 'bribed' had significantly higher scores on Scale 8 (Sc: Schizophrenia) compared to individuals who had been sexually abused by physical force or through both bribery and physical force. Scores on Clinical Scales 2 (D: Depression) and 4 (Pd: Psychopathic Deviate) did not differ according to the nature of the sexual abuse with the p-value set at .006.

Prediction of MMPI-A findings related to Affective Regulation. The findings are not consistent across studies, and none of the Harris-Lingoes Clinical Subscales were present in the literature reviewed. Nonetheless, there is support that certain maltreatment characteristics may be related to particular MMPI scales. In fact, the heterogeneity of the basic scales may have contributed to the varying findings. Thus, for the current study, Clinical Scales 2 (D: Depression), 4 (Pd: Psychopathic Deviate), and 8 (Sc: Schizophrenia) will not be examined independently, rather the items have been further broken down into subcomponents of the symptomatology captured by the parent scales. Narrowing down the various dimensions captured by the clinical scales may in fact serve

as more viable discriminators in detecting individuals with multiple and/or severe maltreatment histories than the parent scales themselves.

Despite the mixed findings, *T-scores* on Clinical Scale 8 (Sc: Schizophrenia) has been consistently higher among individuals (both adolescents and adults) who have been sexually abused compared to individuals who have not been sexually abused. It was also more elevated among women who had experienced both physical and sexual abuse compared to women with only single or no forms of maltreatment in their histories. This offers strong support that Subscale Sc5 (Lack of Ego Mastery-Defective Inhibition) could be related to the severity of physical and sexual abuse as well as the number of maltreatment subtypes.

The majority of studies also found higher elevations among individuals who had been sexually abused compared to individuals who had not been sexually abused. Goldwater and Duffy (1990) also found that women with physical abuse histories had higher scores on this scale than women without such histories. Based on the literature, it would be expected that Subscale Pd4 (Social Alienation) would be significantly related to the severity of *Sexual Abuse* and the severity of *Physical Abuse*. Additionally, there is a strong likelihood that Subscale Pd5 (Self-Alienation) is related to the number of maltreatment subtypes, particularly in light of the finding from Engels et al. (1994) that a combined history of physical and sexual abuse was the best predictor of elevations on the parent scale. Goldwater and Duffy (1990) also found a similar pattern. Since the two studies (Forbey et al., 2000; Williams et al., 1992) that included A-dep found the scale to

be more elevated among individuals with a history of sexual abuse, it is possible that A-dep is also sensitive to the severity of sexual abuse endured.

Table 5

MMPI-A Scales Related to Affective Regulation

MMPI-A Scales
Adolescent Anxiety (A-anx)
Adolescent Obsessiveness (A-obs)
Adolescent Depression (A-dep)
Adolescent Anger (A-Ang)
Welsch's Anxiety Scale (A-scale)
D1: Subjective Depression
D5: Brooding
Sc5: Lack of Ego Mastery-Defective Inhibition
Pd5: Self-Alienation

Rorschach variables related to Affective Regulation. Rorschach variables related to affective experience include (see Table 6): the Depression Index (DEPi) and the ratio of total number of form-dominated chromatic color responses (FC), as compared with the absolute number of color-dominant chromatic responses (CF+C; FC:CF + C). The DEPi is considered 'positive' when five or more criteria are met. A positive DEPi reflects an individual who has a personality organization that frequently experiences depressive symptoms or affective dysregulation (Exner, 1993).

The DEPi is made of 15 variables forming 7 criteria: 1) the presence of any Vista determinant (FV, VF, or V) or more than two responses coded Form Dimension (FD; SumV > 0 OR FD > 2); 2) the presence of a color shading blend, which is any determinant that contains a color (FC, CF, or C) in conjunction with any of the shading variables (FC`, C`F, C`, FY, YF, Y, FV, VF, V, FT, TF, or T) or there are more than two responses using white space (Color-shading blends > 0 OR S > 2); 3) an Egocentricity Index value greater than .44 when there are no reflections or the Egocentricity Index is less than .33 ([3r+(2)/R > .44] and Fr+rF = 0 OR [3r+(2)/R < .33]); 4) the Affective ratio is less than .46 or there are less than four blends, which are responses that contain multiple determinants (Afr < .46 OR Blends < 4); 5) the sum of all the shading determinants (SumSh: FC`, C`F, C`, FY, YF, Y, FV, VF, V, FT, TF, or T) is greater than the sum of animal and inanimate movement responses (FM+m) or there are more than two responses that contain achromatic color (FC`, C`F, or C`; SumShading > FM + m OR SumC` >2); 6) the number of responses that are assigned a special score of Morbid (MOR) is greater than two or the Intellectualization index is greater than three (MOR > 2 OR [2xAB + Art + AY > 3]); and 7) the number of responses that are assigned a special score of Cooperative Movement (COP) is less than two or the Isolation Index (Isolate/R: [Bt+2xCl+Ge+Ls+2xNa]/R) is greater than .24 (COP < 2 OR Isolate/R > .24).

SumV and FD were discussed under the section addressing variables selected to measure the *Self-System*. However, although by themselves, they are associated with the degree of painful self-reflection, these variables load onto the DEPi to capture the aspect of depressive symptomatology having to do with low self-worth. Likewise, as noted

under the discussion related to the *Self-System*, the Egocentricity Index is computed by adding three times the number of reflections with the number of pairs. Caputo-Sacco and Lewis (1991) actually questioned the interpretation of the Egocentricity Index as a signal of self-worth, and suggested it might be more related to withdrawal and concentration difficulties associated with depression.

The DEPi contains two criteria that involve examining the nature of blends on the protocol. First, if a protocol contains at least one color-shading blend, or has three or more S, one of the seven criteria on the DEPi is met. A color-shading blend has been found in 20% of the general population and 55% of individual with clinical depression. It is thought to indicate possible pleasure and pain, an aborted emotional experience, ambivalence, or some confused emotional experience. As mentioned previously, all responses are given a location score that indicates the whole card was used (W), the response uses a major portion of the image (D), or the responses uses a minor detail of the blot (Dd). An 'S' can also be coded in conjunction with the other location codes to denote that the response used the space either as real 'space' or as something white. Space has been proposed to reflect negativism and anger (Exner, 1993).

The second criterion that makes reference to blends is: Afr < .46 or Blends < 4. The Affective ratio is calculated by adding up all the responses to the last three cards, referred to as the color cards, and dividing that sum by the remaining number of responses (i.e., divided by the number of responses to the other seven cards). The Afr is thought to represent an individual's tendency to avoid or approach emotional stimulation. A lower ratio is considered to be reflective of denial or avoidance of emotional

experience (Exner, 1993). Blends are a measure of psychological complexity. Therefore, protocols that have less than four blends are considered to be a sign of psychological narrowness or constriction (Exner, 1993).

SumSh is determined by the number of responses that involve the use of shading. SumSh is believed to measure emotional processes that act essentially as demands on coping. The Y determinant is coded when shading is generically used to create percepts. Individually, SumY had been interpreted as representing anxiety that is situationally caused. T is coded when shading is used for a tactile response (Exner, 1993). The C' determinant is coded when achromatic color (i.e., the black, gray, and white aspects of the blot) is described in the individual's description of the image. Exner (1993) noted that SumC` is related to emotional constraint. The FM determinant is coded when animals are depicted as doing things that animals do. FM has been seen as intrusive preoccupation with longstanding unmet needs, or troubling thoughts and obsessive rumination that interferes in coping. A determinant of m is given when the response includes movement of an inanimate object. Inanimate movement is believed to reflect the experience of tension or conflict related to situational stress. The sum of these two determinants represents cognitive processes that are not necessarily conscious or controllable, and thus may be cognitive demands prompted by the situation (Exner, 1993).

As described previously, MOR is coded when a response depicts something that is dead, broken, damaged, rotting, or includes an emotion such as sadness, unhappiness, and despair. The Intellectualization Index (2xAB+Art+Ay) is calculated by summing twice the number of responses that contain a special score of Abstract (AB), with the

content codes of Art (Art) and Anthropology (AY). AB is scored when either human experience (Hx) is the only content, or the answer includes a "representation of..." or an answer that "symbolizes..." Art is coded when the image is described as a type of artwork, whereas AY is coded when the image is characterized as having a specific historical or cultural connotation. A high score on the Intellectualization Index suggests that the individual is using intellectualization as a way to reduce the impact of strong emotions on him or herself. It can also predispose a person to greater disorganization during times of stress (Exner, 1993).

The special score COP is assigned to any movement response (M, FM, m) involving two or more objects interacting in a manner that is positive or cooperative (Ornduff, Centeno, & Kelsey, 1999). The Isolation Index (Isolate/R: [Bt+2xCl+Ge+Ls+2xNa]/R) is computed by summing the number of content scores of Botany (Bt), Clouds (Cl), Geography (Ge), Landscape (Ls), and two times the number of responses with a Nature (Na) code. Interpretation of COP and the Isolation Index will be discussed under the *Interpersonal Relatedness* subsection, as it is relevant to that construct. Nonetheless, aspects of depression certainly involve difficulty in interpersonal relationships, and thus, these two variables appear as criteria on the DEPi, ultimately relating to the emotional disengagement of positive human connectedness involved in depression (Rose et al., 2001).

Color determinants are presented when the respondent indicated that color was used to determine what the blot might be. The Form-Color ratio (FC: CF+C) represents the degree to which an individual can modulate affective displays. FC represents the

stable and controlled expression of some emotion, as it involves the use of form and shape together, and the integration takes some time to process and evaluate. CF represents an emotion that just barely overcomes control. The person may act on frustration, irritation, empathy, or suggestion without really thinking. Pure C responses relate to actions marked by little or no adaptations as in instances of impulsivity or lability. Research has suggested that when an examinee gives only one pure C, it should be interpreted as a situational event rather than as an indication of a persistent personality characteristic. However, two or more pure Cs represent an inability to control emotional responses. In interpreting the FC:CF + C ratio, when the left side is three times greater than the right side, it is considered to be representative of emotional overcontrol (Exner, 1993). Conversely, when the right side is greater than the left side, this indicates that actions are marked by little or no control. Children over age 11 in the normative sample rarely gave more than one pure C (Exner, 1995).

Affective Regulation (as measured by the Rorschach) and maltreatment. The DEPi has been included in a few studies examining differences between youths who have been sexually abused and those who have not. Shapiro et al. (1990) examined the DEPi, along with the individual variables of SumC`, SumV, MOR, color-shading blends, and the Egocentricity Index. There were elevated DEP indices among females who had been sexually abused compared with children who had not been sexually abused. Abused children also gave more achromatic color (SumC`) and MOR. Additionally, color-shading blends appeared more often among children who had been sexually abused compared to the control group. As noted under the section devoted to the *Self-System*,

although not significant, there was a trend for SumV to be higher among children who had been sexually abused. However, the groups did not differ on the Egocentricity Index.

Leifer et al. (1991) also examined the DEPi as well as variables contained on the index (i.e., SumSh, Afr, and the Isolation Index). Children with histories of sexual abuse met more criteria on the DEPi compared to children with histories of medical illness. The groups also differed on the Isolation Index, with the abused group having higher values. Abused children gave more achromatic color (SumC`) and color-shading blends appeared more often among children who had been sexually abused compared to the control group. The groups were comparable on SumSh and Afr. As previously noted in the section pertaining to the *Self-System* variables, SumV and Egocentricity Index were not significantly different between the two groups, but MOR did differ, with the abused group producing significantly more. Clinton and Jenkins-Monroe (1994) also found that females who had been sexually abused exhibited more emotional constraint (high SumC`) than individuals with medical illness with no history of maltreatment. However, on another shading variable (SumT), participants with abuse histories produced less texture than nonabused children.

Zivney et al. (1988) found individuals who had been sexually abused prior to their 9th birthday met more criteria on the DEPi than did those whose sexual abuse began when they were older. However, the DEPi did not differentiate the clinical control group from either of the two sexually abused groups. Zivney et al. also found that the protocols of children who were sexually abused before age 9 had higher SumY (a variable that contributes to SumSh) than either the late onset abuse group or the non-abused clinical

group. Nash, Zivney et al. (1993) included the variables of MOR, SumC`, and SumY in an impairment index. Sexual abuse that had occurred more than 100 times, involved multiple perpetrators, began at an early age (before age 7 or 8), and that involved periods of intense, frequent episodes (more than 3 or 4 times per month) was predictive of higher scores on the impairment index.

Holaday and Whittenberg (1994) found that 26% of traumatized (i.e., burn victims) children and adolescents had a positive DEPi. Fifty-five percent of the participants had less COP special scores and lower Afr, whereas the protocols contained more S responses and SumC` compared to the norm. As noted under the *Self-System* subsection, Egocentricity Index values were lower and both SumV and MOR were higher. The same participants, plus one additional individual, met the criteria for the DEPi three years later (Holaday, 1998). In another study of traumatized individuals, Holaday et al. (1992) found that children who had been traumatized gave more Space responses (S) relative to the normative group.

Similarly, Holaday (2000) found that children and adolescents with PTSD had a positive DEPi more often than the norm. Additionally, the traumatized youth deviated from the norm on the Egocentricity Index (lower values) and Afr (lower values). The PTSD group did not vary from the norm group on shading variables (SumC`, SumY, SumV, and SumT), nor on the prevalence of COP special codes. It is important to note that the Rorschach variables related to *Affective Regulation* provided by the PTSD group were not different from the clinical comparison group in the study. Thus, it is possible that those variables are common to adolescents with psychopathology, rather than trauma

histories; alternatively, it may be that those variables are more effective in differentiating individuals with certain maltreatment histories rather than individuals with heterogeneous traumatic experiences. In regards to modulation of emotion, Holaday (2000) reported that even though WSUMC was more than one standard deviation below the mean, 33% of the sample provided more pure C responses. Thus, youth who have been traumatized may be more likely to have less color in their protocols, but when they do use color in their responses, they are more likely to be unstructured color percepts.

As noted under the *Self-System* section, the TC/R, which contains MOR, was significantly higher among adults with a history of sexual abuse compared to adults without such a history. Additionally, individuals who experienced more severe sexual abuse had the highest TC/R values (Kamphuis et al., 2000). In the study of women who murdered their physically abusive partner, these women produced lower SumSh including an absence of Vista responses, a lower number of White Space responses, a high prevalence of CF and Pure C determinants. Although the mean Afr was within normal limits, almost two-thirds of the sample had an Afr of less than .44. Only one woman met the criteria for the DEPi (Kaser-Boyd, 1993).

Swanson et al. (1990) presented Rorschach data from 50 combat veterans who had been traumatized. The authors noted that the veterans had higher Afr, and higher Isolation Index values. Among the shading variables, the men tended to have a greater SumY and SumV, but lower SumT. These veterans also produced a disproportionate FC:CF+C ratio, with the right side being much higher than the left. Sloan et al. (1995) examined FC, CF, and C among combat veterans with and without a diagnosis of PTSD.

Individuals with war-related PTSD produced significantly more color responses than either the control or norm groups. A three-year follow-up revealed that the number of color responses were analogous to the comparison groups, suggesting that the impact of trauma on emotional regulation was more salient immediately after the event (Sloan et al., 1996). Meyers (1988), Owens (1984), and Saunders (1991) also found that the protocols of women with histories of incest contained a greater number of Pure C responses.

In an unpublished dissertation, Bank (2001) reported that the DEPi effectively discriminated between individuals with and without a sexual abuse history. The researcher also examined variables contained on the DEPi. White Space was a good discriminating variable. However, the groups did not differ on the prevalence of diffused shading (i.e., SumY) or on the Isolation Index. AspenLeiter (2000) found that 25% of adults with a history of severe sexual abuse had DEPi of five or greater, compared to 2% of the normative population. In contrast, only 3% of adults with less severe sexual abuse histories had positive DEPi. AspenLeiter (2000) also found that over one-third of adults with histories of sexual abuse, regardless of severity, had an increased tendency to exert less emotional control when emotionally stimulated as evidenced by a disproportionate FC:CF+C ratio. Furthermore, when CF and C were examined separately, the author found that individuals with histories of severe sexual abuse had more Pure C determinants in their protocols, whereas individuals with less severe sexual abuse histories did not have any more Pure C responses than the normative group.

In her dissertation, Talbott (2001) did not find that multiple forms of maltreatment experiences contributed to less emotional awareness as measured by the Affective Ratio. Likewise, the Afr did not differ between children who had been either abuse or neglected from their non-maltreated counterparts. Although emotional control, as measured by the Color-Form ratio (FC:CF+C), did not vary according to the number of maltreatment subtypes in a latency-aged sample, children who had been neglected evidenced more impairment in their ability to regulate their emotions than did children who had been physically abused (Talbott, 2001).

Prediction of Rorschach findings related to Affective Regulation. Despite the uncertainties pertaining to individual variables as to their relationship with age of onset (e.g., Zivney et al., 1988), there is evidence that these cluster of variables, including the DEPi, a potential marker of a sexual abuse (e.g., Leifer et al., 1991; Shapiro et al., 1990) or trauma history (e.g., Holaday, 2000). Therefore, it is also possible that the number of criteria met on the DEPi is associated with the severity of sexual abuse experienced (AspenLeiter, 2000).

Additionally, research examining the use of color on the Rorschach as it relates to emotional awareness and control has found some support that trauma and abuse impact the production of color determinants. For instance, a higher sum of CF plus C and a lower number of FC has been found to reflect a history of trauma (e.g., Holaday, 2000), sexual abuse (e.g., AspenLeiter, 2000), and neglect (e.g., Talbott, 2001). Furthermore, a greater number of CF and Pure C determinants have been identified as being more common among individuals with more severe sexual abuse histories (e.g., AspenLeiter, 2000).

In light of these findings, again with most of them being primarily aimed at group differences based on occurrence or absence of a particular form of maltreatment, it would be expected that there would be less FC determinants and a higher sum of CF+C determinants based on the severity of sexual abuse and neglect. Furthermore, developmental theory supports these claims. Accordingly, one potential element of neglect, poor parental monitoring, which was noted above is important to the development of emotion regulation capabilities. Moreover, Seinfeld (1991) proposed that individuals who have been neglected may restrict their emotional expression to allay the burden on the overwhelmed caregiver. However, since emotions build up inside, it is difficult to withhold discharge once triggered by emotional encounters.

Table 6

Rorschach Variables Related to Affective Regulation

Rorschach Variables
Depression Index (DEPi)
SumV (FV+VF+V) > 0 **OR** FD > 0
Col-Shad Blends > 0 **OR** S > 2
(3r+(2)/R > .44) and Fr+rF = 0 **OR** [3r+(2)/R < .33]
Afr < .46 **OR** Blends < 4
SumShading > FM + m **OR** SumC` >2
MOR > 2 **OR** (2xAB+Art+Ay > 3)
COP < 2 **OR** [Bt+2xCl+Ge+Ls+2xNa]/R > .24
FC: CF + C

The Construct of Cognitive Processes

Theoretical framework. *Cognitive Processes* can denote several different functions. Traditionally, cognitive 'functioning' is assessed through an intelligence test that is designed to measure both higher-level processes that involve dimensions such as memory, judgment, and motivation and lower-level processes that involve constructs such as sensation and perception. There is also what has been referred to as perceptual organization, which can be described as how a person organizes incoming stimuli and makes sense of it. Also subsumed under this construct are individual differences in attitudes toward conformity and moral development.

Reality testing can be viewed as the degree to which an individual perceives him or herself, the environment, and other people in a way that conforms to the objective characteristics of those issues. Poor reality testing can be characterized as disturbance in thinking, thus reflecting the structure of thought processes, rather than content. Consequently, an individual with thought disturbances tends to process information in an illogical and odd way (Bodoin & Pikunas, 1983).

Cognitive Processes also include the ability to appraise, process, encode, and store information. All of these functions can be adversely affected by trauma. Bandura (1991) stressed that the development of cognitive competencies requires sustained involvement in activities. If appropriately structured, such pursuits provide the mastery of experiences needed to build intrinsic interest and a sense of cognitive efficacy where they are lacking. This type of enduring self-motivation is best achieved through personal challenges that create a sense of efficacy and self-satisfaction in performance

accomplishments. Thus, another important aspect of *Cognitive Processes* is an individual's involvement with and pursuit of cognitive activities. For adolescents, this includes their experiences with school-related events and aspirations to succeed.

van der Kolk (1985) proposed that poor child-parent relationships could result in cognitive deficits that interfere with the child's ability to organize information and experiences in a logical manner. Studies have documented poorer performance on cognitive measures and impairment in problem-solving skills among children who have been maltreated. For example, Beers and DeBellis (2002) noted that children with maltreatment-related PTSD demonstrated significant deficits within the domains of attention, abstract reasoning, and executive functioning when compared with demographically similar healthy children who had not been maltreated.

MMPI-A scales related to Cognitive Processes. Factor 8: Psychoticism contains scales that have been described as measuring suspiciousness, poor judgment, and distorted thinking (Archer & Krishnamurthy, 2002). The scales on this factor include (See Table 7): Clinical Scale 6 (Pa: Paranoia), Clinical Subscales Pa1 (Persecutory Ideas) of Scale 6 (Pa: Paranoia) and Sc6 (Bizarre Sensory Experiences) of Scale 8 (Sc: Schizophrenia), and Content Scale Adolescent Bizarre Mentation (A-biz). There are other scales that appear to relate to cognitive perceptions, attitudes, and cognitive activities. Such scales are: Validity Scale F, Content Scales Adolescent-School Problems (A-sch) and Adolescent-Low aspirations (A-las), and Clinical Subscales D4 (Mental Dullness) from Scale 2 (D: Depression), and Sc3 (Lack of Ego-Mastery Cognitive) from Clinical Scale 8 (Sc: Schizophrenia).

Scale 6 (Pa: Paranoia) contains 40 items that detect the presence of paranoid symptoms. Elevations reflect suspiciousness, hostility, agitation, and distorted perceptions of others' intentions (Archer, 1997b). Subscale Pa1 (Persecutory Ideas) of Scale 6 (Pa: Paranoia) consists of 17 items. Elevations represent individuals who maintain a sense of being treated unfairly by others, use projection, and report the existence of delusions of persecution (Archer, 1997b). Subscale Sc6 assesses for the presence of strange or unusual sensory experiences (Archer, 1997b). High scores on A-biz are suggestive of poor reality testing, the occurrence of a thought disorder or psychotic thought processes, and possibly the presence of paranoid symptomatology, including hallucinations and delusions (Archer, 1997b).

Validity Scale F is comprised of 66 items that are unlikely to be endorsed by a respondent; it was designed to detect carelessness in responding or deliberate malingering (faking bad). However, Klotz-Flitter, Elhai, & Gold (2003) suggested that high scores may actually denote genuine extreme distress and dissociation that results from traumatic events. Content Scale A-sch contains 20 items. High scores are associated with a high number of academic and disciplinary problems in school (Milne & Greenway, 1999; Williams et al., 1992). Content Scale A-las is comprised of 16 items evaluating an individual's achievement orientation. Elevations correspond with poor academic achievement, low frustration tolerance, persistent pattern of underachievement, few educational goals, procrastination, and a propensity to give up easily when faced with a challenge (Williams et al., 1992). Subscale D4 Subscale (Mental Dullness) from Scale 2 (D: Depression) is made up of 15 items. An elevated score is related to memory

problems, limited concentration, poor judgment, and difficulty in making decisions (Archer, 1997b). Subscale Sc3 (Lack of Ego-Mastery Cognitive) from Clinical Scale 8 (Sc: Schizophrenia) contains 10 items. Elevations reflect the admission of strange thought processes and problems in concentration and attention (Archer, 1997b).

Cognitive Processes (as measured by the MMPI-A) and maltreatment. Forbey et al. (2000) examined Validity Scale F, Clinical Scales 2 (D: Depression), 6 (Pa: Paranoia), and 8 (Sc: Schizophrenia) and Content Scales A-biz, A-sch and A-las. Adolescents who had been sexually abused had significantly higher scores on all three clinical scales compared to adolescents who had not been sexually abused; the content scales did not differ between the two groups at a p-value < .003. Williams et al. (1992) discovered that higher scores among boys from the clinical group on A-biz were indicative of a greater likelihood that a CPS worker had been sent to the home, although the nature of the referral was not specified. There were no differences between the normative and clinical groups according to either physical or sexual abuse on A-sch or A-las.

Holifield et al. (2002) reported that adolescent females who had been sexually abused as adolescents had significantly higher scores on Validity Scale F and Clinical Scales 2 (D: Depression) and 8 (Sc: Schizophrenia) compared to the scores of adolescents without sexual abuse histories; scores on Clinical Scale 6 (Pa: Paranoia) did not differ between the two groups. Scott and Stone (1986) also found clinical elevations on Clinical Scale 8 (Sc: Schizophrenia) among adolescent incest victims. Hillary and Schare (1993) did not find elevations among males who had histories of physical or sexual abuse on Scales 2 (D: Depression), 6 (Pa: Paranoia) or 8 (Sc: Schizophrenia). However, as noted

earlier, the results from that study may have been compromised due to reluctance of the participants to endorse symptoms on the self-report measure.

In a study addressing the question of whether there were certain MMPI scales that permitted classification of adult clients who reported no history of abuse, a history of sexual abuse, a history of physical abuse, or a history of both physical and sexual abuse, Clinical Scale 8 (Sc: Schizophrenia) was among the best indicator of whether an abuse had occurred or not. Further analysis revealed that scores on Scale 8 (Sc: Schizophrenia) were particularly characteristic of those with a history of physical abuse. As noted previously, women with sexual abuse histories did not have higher scores than other women in a clinical sample on Clinical Scale 2 (D: Depression); all participants, regardless of abuse had clinical elevations on this scale (Engels et al., 1994).

Griffith et al. (1997) identified Clinical Scales 2 (D: Depression), 6 (Pa: Paranoia), and 8 (Sc: Schizophrenia) as being significantly more elevated among women with histories of sexual abuse compared to women without histories of sexual abuse. Roland et al. (1989) reported *T-scores* above 70 on Clinical Scales 2 (D: Depression), 6 (Pa: Paranoia), and 8 (Sc: Schizophrenia) for women abused by fathers/stepfathers, and *T-scores* above 60 on Scales 6 (Pa: Paranoia), and 8 (Sc: Schizophrenia) for women abused by other persons. Goldwater and Duffy (1990) were able to identify women who had experienced either sexual abuse or physical abuse from those who had not by their scores on Clinical Scales 6 (Pa: Paranoia) and 8 (Sc: Schizophrenia). Klotz-Flitter et al. (2003) examined scores on Validity Scale F among 98 outpatient women with histories of childhood sexual abuse. The data supported that this scale was related to dissociative

experiences and efforts to engage in cognitive avoidance. Certain sexual abuse characteristics such as force or threat of force, penetration, and a father- figure perpetrator were not related to the scores.

Prediction of MMPI-A findings related to Cognitive Processes. These studies support the likelihood that elevations on Clinical Scales 6 (Pa: Paranoia) and 8 (Sc: Schizophrenia) are characteristic of those with a history of sexual abuse (Engels et al., 1994; Forbey et al., 2000; Griffith et al., 1996; Goldwater & Duffy, 1990; Roland et al., 1985; Roland et al., 1989; Scott & Stone, 1986) and/or physical abuse (Engels et al., 1994; Goldwater & Duffy, 1990). Hillary and Schare (1993) did not find elevations among males who had histories of physical or sexual abuse on either of these two scales, but none of the clinical scales were elevated in their study. Only one other study (Holifield et al., 2002) failed to find group differences based on sexual abuse history on Clinical Scale 6 (Pa: Paranoia) using the MMPI adolescent norms.

Clinical Scale 6 (Pa: Paranoia) is contained on the Psychoticism Factor of the MMPI-A Structural Summary, as are Harris-Lingoes Clinical Subscales Pa1 (Persecutory Ideas) and Sc6 (Bizarre Sensory Experiences). Also selected for analysis with the *Cognitive Processes* dimension was Harris-Lingoes Clinical Subscale Sc3 (Lack of Ego-Mastery-Cognitive). Thus, if parent scale, Clinical Scale 8 (Sc: Schizophrenia), is related to abuse, it is possible that Factor 8: Psychoticism and Sc3 (Lack of Ego-Mastery-Cognitive) might also be related to the severity of both sexual and physical abuse.

Given the fact that two of the forms of maltreatment are more often than not associated with elevations on Clinical Scales 6 (Pa: Paranoia) and 8 (Sc: Schizophrenia),

it is possible that higher scores will be predictive of a combination of maltreatment experiences. Therefore, it would be expected that Factor 8: Psychoticism, onto which Scale 6 (Pa: Paranoia), Subscales Pa1 (Persecutory Ideas) and Sc6 (Bizarre Sensory Experiences) load, would be related to the number of maltreatment subtypes, as would Clinical Subscale Sc3 (Lack of Ego-Mastery). Further support for this conjecture is inherent in van der Kolk's (1985) theory that traumatic stress could contribute to difficulties in a child's organizing information and experiences in a coherent manner.

Adolescents with histories of sexual abuse have been found to have higher scores on Validity Scale F (Forbey et al., 2000; Holifield et al., 2002). However, when Klotz-Flitter et al. (2003) examined trauma-related symptomatology, in addition to specific features of participants' sexual abuse histories, the researchers found that dissociation and cognitive avoidance in adults significantly predicted Validity Scale F scores, whereas sexual abuse attributes (e.g., frequency, intensity, duration, etc.) did not. Nonetheless, the authors suggested that elevations on this validity scale might reflect genuine trauma-related distress rather than exaggeration or fabrication of symptoms. Thus, a relation between Validity Scale F and the severity of *Sexual Abuse* is expected.

Table 7

MMPI-A Scales Related to Cognitive Processes

MMPI-A Scales
Factor Eight: Psychoticism
Scale 6, Paranoia (Pa)
Pa1: Persecutory Ideas
Sc6: Bizarre Sensory Experiences
Adolescent Bizarre Mentation (A-biz)
Adolescent School Problems (A-sch)
Adolescent Low Aspirations (A-las)
Sc3: Lack of Ego-Mastery
D4: Mental Dullness

Rorschach variables related to Cognitive Processes. The Rorschach variables that appear to be related to various aspects of cognitive functioning include: the Perceptual Thinking Index (PTI), Developmental Quality of vague (DQv), processing efficiency (Zd), organizational activity (Zf), and the Special score assigned to preservative responses (PSV). Prior to Exner (2001), the PTI index was called the Schizophrenia Index (SCZI). It was renamed in Exner's most recent scoring system to better reflect the emphasis on thought processes, rather than a specific diagnosis. Please refer to Table 8 for a list of the Rorschach variables measuring *Cognitive Processes.*

The criteria for the PTI are: 1) the number of responses that contain a form quality of +, o, or u divided by the total number of responses is less than .70 and the number of responses with location scores of W or D that contain a form quality of +, o, or u divided by the total number of responses with location scores of W or D is less than .75 (XA% > .70 AND XDA% > .75); 2) the number of responses that contain a form quality of minus divided by the total number of responses is greater than .29 (X-% > .29); 3) there are more than two special scores that have a level two and there is at least one response that contains a special score of fabulized content (LV2 > 2 AND FABCOM > 0); 4) the weighted equation of six special scores (Wsum6) that concern unusual verbalizations is greater than 12 when the number of responses is less than 17 or Wsum6 is greater than 17 when the number of responses is greater than 17 (R < 17 AND Wsum6 > 12 OR R > 16 and Wsum6 > 17); 5) the number of responses that contain a human movement with a minus form quality is greater than one or XA% is greater than .40 (M- > 1 OR X-% > .40).

The first criterion appearing on the PTI pertains to form quality (FQ). The conventional translation of stimuli is expressed as XA%, which is a measure of the percentage of responses that examinees identify that are characteristic of typical responses provided by others and conforms to the percept of the blot. When this variable is less than 70% the possibility exists that the individual is unable to perceive objects and events as most people would. XDA% is the perception of objects in responses that use the whole card or large portions of the blot, and thus relates to how people interpret events in their environment when incorporating more features of that environment.

There are two criteria pertaining to minus form quality. X-% is the percentage of responses that deviate from conventional form in organizing perceptions of the stimuli or that involve perceptual distortion (Bodoin & Pikunas, 1983). Exner and Weiner (1995) suggested that protocols in which 29% or more of the form quality consists of minus responses are indicative of individuals who perceive the world inaccurately and have faulty anticipations of consequences. Moreover, Exner (1993) noted that an X-% greater than .40 is a significant indication of poor reality testing.

Another criterion on the PTI is that there are more than two special scores having a level of 2 and that at least one of the special scores (regardless of level) is coded as FABCOM. Special scores can be assigned as either level one or level two. Level two codes are considered to be reflective of responses that clearly violate reality. FABCOM is coded when two things do something impossible or bizarre. Also relevant to special scores, is the criterion that weighted sum of all special content scores (Wsum6) is above either 12 (when the protocol contains less than 17 responses) or above 17 (when the protocol contains more than 16 responses). The prevalence of Wsum6 is more common among younger respondents than in adults. Exner (1993) reported that the mean Wsum6 for adults was 3.2, whereas the mean Wsum6 for 5-year-olds was almost 15.

The determinant and form quality combination (M-) is coded when an examinee identifies human activity in the blot, and the individual also violates the contours of the blot in the identification of the percept. Human movement responses that have a minus quality form have been considered reflective of individuals who use deficient social skills and have troubled interpersonal relationships (Exner, 1993).

In addition to the variables on the PTI, the quality of cognitive processing can be measured by evaluating the Developmental Quality (DQ). The DQ is believed to represent an individual's willingness to analyze and synthesize the inkblot image in a meaningful way (Exner, 1993). Research regarding DQ suggests that bright and competent individuals typically provide DQ+ responses, whereas individuals who are less mature in their processing often provide DQv responses. Exner (1993) reported that by the time someone reaches 16, it is highly unlikely to observe more than one DQv in the protocol.

Each response could potentially receive a z-score. Z-scores are assigned based on a chart of values for each card; the values vary for each inkblot depending upon the reason for it being given and the difficulty of the inkblot. There are two values obtained based on z-scores; Zf is the number of responses that contain a z-score and Zd is computed by subtracting the actual tally of all z-scores assigned to each response from the projected sum of z-score values. The Zd score gives information about the examinee's ability to process information in the environment with efficiency and accuracy.

When the Zd value is less than –3, it usually indicates that the individual scans the environment quickly and haphazardly (Weiner, 1998). Individuals with this type of scanning style are referred to as "underincorporators." Underincorporators tend to scan the environment superficially and quickly, and make decisions based on a more limited set of information than is required to draw accurate conclusions. When Zd is negative, the individual is not attentive to his or her internal or external world. In contrast, individuals who have a Zd of 3 or greater are described as obsessive or having a perfectionistic

personality style (Exner, 1993; Weiner, 1998). Seventy percent of Exner's (1993) normative sample had Zd scores that were between +3 and -3. Although the mean Zd score for individuals ages 10 and older is zero, 25% of youth ages 16 to 19 have Zd scores of +3 or greater.

The special score of PSV has been proposed as a measure of cognitive inflexibility. Within-card preservations constitute the majority of PSV responses that have been reported to "signal a failure of cognitive shifting . . .[implying] that the subject has some problems with cognitive inflexibility or rigidity as related to information processing or decision making" (Exner, 1993, p. 459).

Lambda is computed by dividing the number of determinants that are pure form (F) by the remaining number of responses (F/(R-F)). High values are thought to signal simplistic responses to stimuli that ignore the complexity of resources effectively, whereas very low Lambda values are believed to represent an over involvement with stimuli to the extent that affect disrupts cognitive function. There has been some speculation that low values also represent individuals who are achievement-oriented and who deal effectively with their environment. It is important to keep in mind that adolescents have been found to provide more pure form responses (Exner, 1993).

Cognitive Processes (as measured by the Rorschach) and maltreatment. Zivney et al. (1988) found that children who were sexually abused during early development met significantly more criteria on the SCZI than those who were abused later in their development. Zivney et al. also found that children from the early onset abuse group manifested more disturbed cognition as evidenced by a greater occurrence of special

scores (e.g., DV and FABCOM), M-, and X+%. Nash, Hulsey, et al. (1993) found that youth, regardless of age at the time of testing, displayed higher scores on an impairment index, which consisted of six variables including M-, the number of special scores, and X+%[3], when the sexual abuse was more intense, more frequent, was perpetrated by more than one individual across the victim's lifespan, and began at an earlier age. Leifer et al. (1991) examined the X-% and Wsum6, both of which are contained on the PTI; the researchers also examined Zf. Females who had been sexually abused had a significantly higher X-% and Wsum6 compared to females who had chronic illnesses (e.g., asthma, sickle cell anemia, juvenile diabetes). The groups did not differ on the Zf value.

Researchers examining trauma populations other than maltreatment have also found similar findings pertaining to Rorschach assessment of *Cognitive Processes*. Holaday and Whittenberg (1994) reported that 23% of children and adolescents who had been burned met four or more criteria on the SCZI. Ninety-one percent of the participants had X+% below the mean. The same percentage of individuals had elevated PTI in a readministration five years later; 75% of participants had lower X+%. Holaday (2000) reported that although both the PTSD and the ODD group revealed significant differences from the normative tables on the SCZI, X+%, WSumC, Raw SumS, and Wsum6, SCZI and three of the criteria tests that comprise it (X+ %, Raw SumS, and Wsum6) were significantly different between the PTSD and ODD groups, with the PTSD group responding with more extreme scores. Individuals with histories of trauma also evidenced lower Zf, but so did individuals with a diagnosis of ODD.

[3] The numerator for X+% is the number of responses containing a form quality of + or o, whereas the numerator for XA% also contains FQu.

Swanson et al. (1990) reported that compared to normative values, the veterans in their study had lower X+% and higher X-%, as well as higher Lambdas. However, the authors did not find that the men met more criteria on the SCZI, nor did they have a higher prevalence of cognitive special scores. Similarly, Hartman et al. (1990) found that veterans being treated for combat-related PTSD had lower X+% and greater X-% as well as higher Lambda values. Sloan et al. (1996) noted that similar to the other investigations X+% was higher among veterans with a diagnosis of PTSD than military personnel without that diagnosis. Lambda also differentiated these groups; however, in contrast to the other studies, Lambda was significantly below the normative mean rather than higher. During follow-up, the veterans who had been diagnosed with PTSD yielded Rorschach protocols consistent with their marine non-combat counterparts as well as the normative group. In her sample of women who endured domestic violence that ended in the women killing their significant others, Kaser-Boyd (1993) reported elevated Lambda values, a greater number of responses scored DQv, lower Zd values, lower X+%, and higher X-%. There was not a greater occurrence of Cognitive Special Scores or more human movement with a minus form quality (M-), and only one protocol met several criteria on the SCZI.

There have been several dissertation studies that have used the Rorschach to assess *Cognitive Processes* in youth have been maltreated. Bank (2001) did not find a difference between females who had been sexually abused and females who had not been sexually abused on the SCZI. However, the researcher found that adolescents who had been sexually abused had significantly lower Zd values than adolescents who had not

been sexually abused. Talbott (2001) examined the reality testing of children who had been neglect, abused, both, or not maltreated. Similar to the studies described above, children who had been maltreated exhibited greater impairment in their perceptual organization as evidenced by higher X-% and lower X+% and a greater occurrence of the Cognitive Special Score, FABCOM, than children with no maltreatment histories. However, the researcher did not find a difference on those variables for those who had experienced a single form of maltreatment from those who had been multiply maltreated. There were no differences in the Developmental Quality of the responses among the four groups; rather all four groups demonstrated poorer quality of processing as reflected in more responses assigned DQv and less responses meeting criteria to receive a DQ+. Thus, in that outpatient sample, it appeared that there was a factor other than maltreatment that contributed to diminished processing capacity. Other variables, such as Special Score: PSV and Zd did not differ among the groups; neither children without maltreatment histories, nor children who had been maltreated displayed impairment on these variables.

Prediction of Rorschach findings related to Cognitive Processes. With the exception of one study (Bank, 2001), the research has consistently supported that the PTI is elevated on the protocols of children who have been sexually abused. These findings are most likely attributable to a higher X-% and a higher frequency of M-. Moreover, researchers examining the impact of other traumatic experiences using the Rorschach have also found that the PTI index (and variables contained on it) differentiates those who have been traumatized from those who have not (Holaday, 2000; Holaday et al.,

1992; Holaday & Whittenberg, 1994). Thus, whether the PTI is reflective of trauma in general, or if it would be a good predictor of the number and severity of maltreatment experiences, is uncertain. Nonetheless, an exploratory hypothesis will be put forth predicting that the number of criteria met on the PTI will be positively related to the severity of *Sexual Abuse*. Moreover, it would be expected that higher elevations on the PTI would be associated with the experience of more maltreatment subtypes.

Talbott (2001) did not find Zd to vary according to maltreatment history; however, the researcher did not include children with a history of sexual abuse. Kaser-Boyd (1993) found lower Zd values among women who had been battered, while Bank (2001) found lower Zd values among adolescents who had been sexually abused compared to the Zd values of adolescents who had not been sexually abused. Conceptually, sexual abuse may disrupt the ability to process information in the environment with efficiency and accuracy (van der Kolk, 1985). Thus, it is possible that Zd values will be inversely related to the severity of sexual abuse.

Table 8

Rorschach Variables Related to Cognitive Processes

Rorschach Variable
Perceptual Thinking Index (PTI)
XA% < .70 **AND** XDA% < .75
X-% > .29
LV2 > 2 **AND** FAB2 > 0
R < 17 and Wsum6 > 12 **OR** R > 16 and Wsum6 > 17
M-> 1 **OR** X-% > .40
Developmental Quality-vague (DQv)
Presence or absence of Special Score, Preservative Response (PSV)
Processing Efficiency (Zd)
Organizational Activity (Zf)
Lambda

The Construct of Interpersonal Relatedness

Theoretical framework. Aspects of social functioning include individual differences in interaction patterns, perceptions of and bonds to others, the extent to which a person has cooperative or rebellious attitudes towards others, the degree of social comfort or anxiety an individual experiences, and a person's tendencies towards dependency upon or manipulation of others.

Attachment theory is central to understanding the development of interpersonal relationships. Bowlby (cited in Waters, Weinfield, & Hamilton, 2000) was one of the leading attachment theorists emphasizing that it is the interaction between the primary caregiver and the child that forms the child's belief system relative to the self, others, and the environment. Bonds between a child and caregiver begin at birth. An attachment figure serves as the base from which a young child can explore the environment.

Adolescence is a transitional period. It begins the 'journey' from dependency to autonomy. Peer relationships take 'center stage;' egocentricity gives way to altruism, thereby cultivating the growth of mature emotional bonds and affections (Price, Spence, Sheffield, & Donovan, 2002). According to social learning theory, adolescents whose activities are supervised by caregivers benefit from that supervision and guidance; they are more likely than their unsupervised counterparts to develop socially accepted norms and behaviors. In the transition to adulthood, adolescents benefit from parental scaffolding that provides gradual independence, moderated by supervision and emotional support as adolescents move towards physical, mental and emotional maturity. Thus, it is important for adolescents to maintain a connection with their parental figures in order to promote healthy social adjustment (Ardelt & Day, 2002).

Consequently, it is not surprising that childhood trauma has been found to disrupt social relationships and attachments with others. The effects of abuse and neglect stem from the exploitation of a child's dependency on their caregiver for survival, protection, and love (Herman, 1992). Seinfeld (1991) asserted that children who are emotionally and physically neglected perceive human relationships to be harmful and dissatisfying. These

children learn that closeness to others results in abandonment, and therefore may attempt to regain a sense of safety through several modalities. In order to cope with this interpersonal mistrust some may turn to non-human things for comfort. Accordingly, the adolescent who has been maltreated is likely to become preoccupied with food, money, clothing, or addictive substances because he or she was unable to depend on significant others (Seinfeld, 1991). Thus, substance and alcohol use in adolescence can be viewed from an interpersonal context.

van der Kolk (1985) addressed patterns of children who had been physically abused noting that many of these children acquire a sense of hypervigilance, or "frozen watchfulness." A hypervigilant child is one that anticipates danger and attempts to protect him or herself; he or she is always on alert, sensitive to signs of 'danger'; unusual movements or sounds may result in immediate withdrawal or retreat.

MMPI-A scales related to Interpersonal Relatedness. There appear to be two factors on the MMPI-A structural summary that capture adolescents' perceptions of their interpersonal functioning and social relationships: Factor 4: Social Discomfort and Factor 7: Familial Alienation. The additional scales that appear to reflect aspects of *Interpersonal Relatedness* include: Subscales Hy2 (Need for Affection) of Scale 4 (Hy: Hysteria), Pd4 (Social Alienation) of Scale 6 (Pd: Psychopathic Deviate), and Si2 (Social Avoidance) of Scale 0 (Si: Social Introversion). Please refer to Table 9 for a list of the MMPI-A scales measuring *Interpersonal Relatedness*.

Factor 4: Social Discomfort includes Clinical Scales 0 (Si: Social Introversion) and 7 (Pt: Psychasthenia), Content Scales Adolescent Social Discomfort (A-sod) and

Adolescent-Self-esteem (A-lse), and Clinical Subscales Si1 (Shyness/Self-Consciousness) from Scale 0 (Si: Social Introversion), Ma3 (Imperturbability) from Scale 9 (Ma: Mania), the Hy1 (Denial of Social Anxiety) from Scale 3 (Hy: Hysteria), and Pd3 (Social Imperturbability) from Scale 4 (Pd: Psychopathic Deviate). Scale 0 (Si: Social Introversion) contains 62 items that measure social relationship problems. Elevations represent individuals who are more introverted, more comfortable when alone or with close friends, and who are shy, especially around members of the opposite sex. Scale 7 (Pt: Psychasthenia) is comprised of 48 items that capture symptoms of anxiety. High scorers tend to be anxious, jumpy, tense, agitated, possess feelings of inferiority, and set high standards for themselves. Because they worry about popularity and acceptance, but do not interact well socially, it may be difficult to become close to these individuals (Archer, 1997b).

Content Scale A-lse was introduced during the section on the *Self-System*. A-lse, as discussed under *Self-System,* relates to how individuals view themselves. Those who have lower self-concepts are less likely to be comfortable engaging in social exchanges. Content Scale A-sod contains 24 items that reflect uneasiness in social interactions. High scores reflect social discomfort and withdrawal, shyness and social introversion, avoidance of social events and perceived difficulty interacting with others (Williams et al., 1992). Subscale Si1 (Shyness/Self-Consciousness) from Scale 0 (Si: Social Introversion) is comprised of 14 items that measure the degree of comfort in social situations. Elevated scores indicate that an individual is shy, easily embarrassed, and uncomfortable in new situations. Subscale Ma3 (Imperturbability) from Scale 8 (Ma:

Mania) contains 8 items. High scorers express confidence in social situations, care little for what others think, and can come across as impatient and irritable. Subscale Hy1 (Denial of Social Anxiety) from Scale 3 (Hy: Hysteria) contains 6 items that capture extroverted personality styles. High scorers tend to be socially extroverted, comfortable interacting with others, and not easily influenced by social standards and customs. Subscale Pd3 (Social Imperturbability) from Scale 4 (Pd: Psychopathic Deviate) is made up of 6 items. High scores correspond with individuals who deny social anxiety and dependency needs, who are socially extroverted and possess social confidence, and who have a tendency to staunchly uphold their point of view (Archer, 1997b).

Factor 7: Familial Alienation consists of Clinical Scale 4 (Pd: Psychopathic Deviate), Content Scale A-fam (Adolescent Family Problems), Clinical Subscale Pd1 (Family Discord) from Scale 4 (Pd: Psychopathic Deviate), and Supplementary Scale PRO (Alcohol/Drug Problem Proneness). Clinical Scale 4 (Pd: Psychopathic Deviate) is comprised of 49 items that reflect antisocial, acting out behavior. High scorers have been characterized as sensation seeking, immature, impulsive, and are rebellious and resentful of authority. Moreover, high scoring individuals tend to have difficulty in family and intimate relationships. Content Scale A-fam is comprised of 35 items that reflect problems with parents and other family members. Elevations signify the perception of family environment as unsupportive, hostile, unloving, or punitive. Individuals respond to these family problems by acting out, including running away from home and displaying resentment, anger, and hostility toward relatives (Williams et al., 1992). Subscale Pd1 (Family Discord) from Scale 4 (Pd: Psychopathic Deviate) represents individuals who

have a view of their home and family as unpleasant, hostile, rejecting, lacking in love, critical, and controlling. Supplementary Scale PRO is made up of 36 items that evaluate an adolescent's potential for the development of substance abuse. High scores suggest that there is a tendency for the individual to have lifestyle characteristics associated with the development of drug and alcohol problems (Archer, 1997b).

The additional scales encompass other areas of *Interpersonal Relatedness* that address the need for affection, perceptions of acceptance, and interest in involvement with others. Subscale Hy2 (Need for Affection) of Scale 4 (Hy: Hysteria) contains 12 items. High scores indicate strong needs for attention and affection, whereas low scores represent critical and suspicious attitudes toward others. Subscale Pd4 (Social Alienation) of Scale 6 (Pd: Psychopathic Deviate) contains 12 items. Elevations indicate that a respondent feels misunderstood and isolated, as well as has a tendency to blame others for problems or conflicts. Subscale Si2 (Social Avoidance) of Scale 0 (Si: Social Introversion) is made up of 8 items that measure interest in social activities. High scores reflect a dislike or evasion of social activities and an avoidance of contact or involvement with others (Archer, 1997b).

Interpersonal Relatedness (as measured by the MMPI-A) and maltreatment.

Forbey et al. (2000) examined several MMPI-A scales that address *Interpersonal Relatedness,* including Clinical Scales 3 (Hy: Hysteria), 4 (Pd: Psychopathic Deviate), 7 (Pt: Psychasthenia), 9 (Ma: Mania), and 0 (Si: Social Introversion), and Content Scales A-lse, A-sod, and A-fam. The researchers found that adolescents who had been sexually abused had significantly higher scores than nonabused adolescents on Clinical Scales 4

(Pd: Psychopathic Deviate) and 0 (Si: Social Introversion); differences on Clinical Scales 3 (Hy: Hysteria) and 7 (Pt: Psychasthenia) did not reach significance at $p < .003$, and Clinical Scale 8 (Ma: Mania) would not have even been viewed as significantly different between the two groups with $p < .05$. Scores on all three content scales were also significantly higher among the adolescents with histories of sexual abuse. William et al. (1992) found that within the clinical group, boys who scored in the clinically elevated range on A-fam, had histories of physical abuse, whereas females with high scores on this content scale had histories of sexual abuse. These patterns were not found within the non-clinical group. Williams et al. (1992) did not find elevations based on abuse history among either the normative or clinical groups on A-sod. As noted previously, A-lse related to a history of sexual abuse among adolescents in the clinical sample.

Holifield et al. (2002) also evaluated differences between sexually abused adolescents with clinical histories from non-sexually abused youth with clinical histories on Scales 3 (Hy: Hysteria), 4 (Pd: Psychopathic Deviate), 7 (Pt: Psychasthenia), 9 (Ma: Mania), and 0 (Si: Social Introversion). Only scores on Clinical Scale 4 (Pd: Psychopathic Deviate) differed between sexually abused adolescents compared to nonabused adolescents, with greater elevations among individuals with sexual abuse histories. The researchers did report that those who had been sexually abused were twice as likely (40% compared to 19%) to receive clinically elevated scores on Clinical Scale7 (Pt: Psychasthenia). There were no elevations on any MMPI-A scales in the study conducted by Hillary and Schare (1993); consequently, their study did not provide support that adolescent males present with more impaired functioning as evidenced by

scores on Scales 3 (Hy: Hysteria), 4 (Pd: Psychopathic Deviate), 7 (Pt: Psychasthenia), 9 (Ma: Mania), and 0 (Si: Social Introversion).

Scott and Stone (1986) did not find that adolescents who had been sexually abused had elevations on Scale 4 (Pd: Psychopathic Deviate), however adults who were abused as children did have *T-scores* above 70 on that scale. In a subsequent study, Scott and Flowers (1988) found that adolescents who believed their mothers knew of the incest during its occurrence had higher scores on Clinical Scales 3 (Hy: Hysteria) and 9 (Ma: Mania) than adolescents whose mothers did not know of the incest.

In contrast to the above findings with adolescent samples, Griffith et al. (1997) found significantly higher scores on Clinical Scale 7 (Pt: Psychasthenia) among women with a history of sexual abuse, as did Roland et al. (1985) and Engels et al. (1994). Griffith et al. also found that women who were sexually abused as minors had higher scores on Clinical Scales 4 (Pd: Psychopathic Deviate), 6 (Pa: Paranoia), and 9 (Ma: Mania), but not on Scales 3 (Hy: Hysteria) or 0 (Si: Social Introversion). Goldwater and Duffy (1990) found that Clinical Scale 6 (Pa: Paranoia) was elevated among women who had either been sexually or physically abused.

Prediction of MMPI-A findings related to Interpersonal Relatedness. Again, there are mixed findings pertaining to scales under the construct of *Interpersonal Relatedness*. Most consistent, however, has been the link between a history of sexual abuse and higher scores on Scale 4 (Pd: Psychopathic Deviate); four of the six studies reviewed found higher elevations among individuals who had been sexually abused compared to individuals who had not been sexually abused. Goldwater and Duffy (1990) also found

that women with physical abuse histories had higher scores on this scale than women without such histories. Based on the literature, it would be expected that Subscale Pd4 (Social Alienation) would be significantly related to the severity of *Sexual Abuse* and the severity of *Physical Abuse*. Additionally, because the clinical scale itself and one of its subscales load onto Factor 7: Familial Alienation and another subscale loads, it is possible that Factor 7: Familial Alienation would be positively related to the severity of *Sexual Abuse* and *Physical Abuse* experienced.

There is a strong empirical base to support to low family cohesion, low family adaptability, and high family conflict are not only significant predictors of maltreatment severity, but also multiple forms of maltreatment (Higgins & McCabe, 1998). From an attachment perspective, maltreatment may affect the future behavior of children by exposing them to adverse object relations and encouraging the formation of insecure attachments. Therefore, theoretically, adolescents who have been maltreated may form connections with peers who engage in delinquent behaviors due to disrupted attachments within the family context. Such affiliations may increase the risk for substance use. Therefore, it would be expected that in addition to more severe forms of physical and sexual abuse, higher levels of family conflict, and a greater likelihood to cope by engaging in behaviors that are associated with substance use are characteristic of individuals who have been multiply maltreated.

Table 9

MMPI-A Scales Related to Interpersonal Relatedness

MMPI-A Scales
Factor Four: Social Discomfort
Scale 0, Social Introversion (Si)
Scale 7, Psychasthenia (Pt)
Adolescent Social Discomfort (A-sod)
Adolescent Low Self-esteem (A-lse)
Si1: Shyness/Self-Consciousness
Ma3: Imperturbability
Hy1: Denial of Social Anxiety
Pd3: Social Imperturbability
Factor Seven: Familial Alienation
Scale 4, Psychopathic Deviate (Pd)
Adolescent Family Problems (A-fam)
Pd1: Family Discord
Alcohol/Drug Problem Proneness (PRO)
Hy2: Need for Affection
Pd4: Social Alienation
Si2: Social Avoidance

Rorschach variables related to Interpersonal Relatedness. Variables from the Rorschach that can be included in the category of *Interpersonal Relatedness* are (see Table 10): the Coping Deficit Index (CDI), the Hypervigilance Index (HVI), and the ratio of Good Human Responses to Poor Human Responses (GHR:PHR). The CDI is considered "positive" when four or five of the criteria are marked. A positive CDI suggests the existence of impoverished or unrewarding social relationships, difficulty contending with natural demands of the social world, ineptness in social situations, a sense of helplessness that can cause an individual to lose control (similar to those observed in overloaded situations), social immaturity, and questionable capacity for control (ability to form direct responses).

The Coping Deficit Index (CDI) is made up of 11 variables forming 5 criteria, and is considered to be an indictor of coping limitations and control: 1) the Experience Actual (EA) is less than six or the adjusted D score (AdjD) is less than 0 (EA < 6 OR AdjD < 0); 2) the number of responses that are assigned a special score of cooperative movement (COP) is less than two and the number of responses that are assigned a special score of aggressive movement (AG) is less than two (COP < 2 AND AG < 2); 3) the weighted sum of the color responses (WSumC) is less than 2.5 or the Affective Ratio (Afr) is less than .46 (adjusted according to age) (WSumC < 2.5 OR Afr < .46); 4) the number of movement responses that are coded as active movement (a) is less than one plus the number of movement responses coded as passive movement (p; a < p + 1); 5) the sum of texture (SumT) is greater than one, the Isolation Index is greater than .24, or the number

of food content codes appearing on the protocol is greater than zero (SumT > 1 OR Isolate/R > .24 OR Fd > 0).

It is important to note that the CDI could have potentially been discussed under the construct of *Affective Regulation,* as it is has been found to be associated with the helplessness aspect of depression, and also reflects how well an individual manages stressors. However, since research findings have supported that a positive CDI reflects that an individual is predisposed to functional disorganization, especially in relation to their interactions with others during stressful situations (Exner, 1991), it was considered a marker of dissatisfying interpersonal relations.

EA is the sum of all human movement responses (M) plus the weighted sum of color responses (SumM+WsumC). M represents mindful, coherent thinking that accommodates the self. The weight of the sum of the color determinants (1.5 x C) + (1 x CF) + (.5 x FC) reflects the degree of emotional discharge reflected in the responses, with a score of pure C suggesting loss of emotional control (Exner, 1993). When EA is less than six, it is suggestive that an individual has few potential resources, cognitive and emotional. Adj D reflects the capacity for control, by subtracting chronic demands from typically available resources, it is a measure of what remains. When AdjD is less than zero, it signifies that an individual has inadequate resources and is typically overwhelmed or in crises (Exner, 1993).

COP was introduced when discussing the criteria for the DEPi; it also loads onto the CDI. Again, a score of COP is assigned to any movement response (M, FM, m) involving two or more objects interacting in a manner that is positive or cooperative

(Ornduff et al., 1999). Cooperative (COP) movement responses appear to be associated with social ability and leadership (Exner, 1993). Aggressive (AG) responses are coded for movement responses that are aggressive in nature (Ornduff et al., 1999). According to Exner (1993), scores on AG appear to be positively associated with an increased likelihood for verbal and nonverbal aggression, and may reflect a sense of discomfort in interpersonal situations.

Color responses and Afr were described under the area of *Affective Regulation*. WsumC (discussed above) is a weighted sum of all the Color responses. Both of these variables are evidence of how an individual responds to emotional stimulation. All movement is classified as either active (a) or passive (p). Active movement has been defined as movement that involves states of tension or a great deal of energy. Passive movement is coded when the response describes low-energy movement or something being acted upon. On the CDI, the criterion is a < p + 1. High p indicates a person who is less likely to take an active role in problem solving, and may avoid involvement and responsibility when confronted with problems. They are more likely to "let matters be" and fantasize about getting what they want without having to act (Exner, 1993).

Human content is delineated by codes of H, (H), Hd, or (Hd). Pure Hs, as opposed to either Hd (human detail) or parenthesized human-like figures (humans being described as a non-real character such as a witch, a cartoon character, etc.), suggest that an individual's notions of people are based on actual experience more than derived from imaginary conception. Less than two responses that have a content code of pure H indicates less mature people who have difficulty relating to others, and they have poor

coping skills, especially when interpersonal factors affect the situation (Exner, 1993). Furthermore, Exner (1993) purported that individuals who provide more pure human responses experienced greater connectedness in their interpersonal relationships, and that non-real human figures and non-full human forms were more likely to show up in protocols of those who had poorer attachments.

The Isolation Index appeared on the DEPi. It is expected to relate to social isolation. It involves the content scores of Botany, Clouds, Geography, Landscape, and Nature. Scores greater than .25 are believed to be indicative of an individual who has less interest in or more insecurity about engaging in social exchanges. Food is coded when an individual includes any type of food as part of the response. Food is believed to reflect an individual's unmet nurturing needs (Exner, 1993). Texture responses represent how comfortable individuals feel about the possibilities of engaging in close, intimate, and mutually supportive relationships. Texture is coded when shading is used for a tactile response (Exner, 1993). Leavitt (2000) characterized Texture responses as a representation that children have internalized tactile imagery and contact experiences as an outgrowth of security needs.

A significant HVI suggests that a person is constantly on the alert for potential sources of threat to his safety and security. These individuals possess interpersonal distrust or guardedness, use considerable energy to maintain a relatively continued state of preparedness, have origins in a mistrusting attitude toward environment, feel vulnerable, and do not expect closeness, and in fact, often become suspicious about the gestures of closeness by others (Exner, 1993).

The Hypervigilance Index (HVI) is intended to reflect an individual's attitudes regarding trust. In order for the HVI to be positive, a person must not give any Texture responses (FT+TF+T = 0). Then he or she must meet at least four of seven additional criteria: 1) the number of z-scores assigned in a protocol is greater than 12 (Zf > 12); 2) the difference between the sum of all Z-scores from an individual protocol from the projected sum of z-score values is greater than 3.5 (Zd > +3.5); 3) there are more than three responses using white space (S > 3); 4) the sum of all human content is greater than 6 (H+(H)+Hd+(Hd) > 6); 5) the sum of all imaginary human and/or animal content is greater than 3 ((H)+(A)+(Hd)+(Ad) > 3); 6) the ratio of whole human and/or animal content is less than four times the number of part human or animals representations (H+A:Hd+Ad < 4:1); 7) the number of responses containing clothing as a content code is greater than 3 (Cg > 3).

Texture (T) is the first criterion for HVI. Other variables on the constellation are not further examined when a protocol contains one or more Ts. It is interesting to note that Texture is also a critical variable on the CDI, as well as subsumed by the Sum of Shading on the DEPi (discussed under the *Affective Regulation* subsection). Most noteworthy is the fact that on the HVI, the criterion is the absence of T, whereas on the CDI the criterion is presence of more than one T. This difference demonstrates the importance of the T variable. The absence of T reflects the withdrawal of affection due to the fear of abuse or rejection. In contrast, more than one T reflects a higher need for closeness. In both instances, it reflects the likelihood that an individual has been deprived of basic nurturance.

As z-scores represent efforts toward and efficiency of information processing, they were addressed in the *Cognitive Processes* section. Both Zf and Zd appear on the HVI because someone with a hypervigilant personality style would not only scan the environment extensively, but also do so cautiously (Exner, 1993). Space was discussed under the construct related to *Affective Regulation*, as it is one of the criteria on the DEPi. More than three Space responses indicate a pessimistic and negativistic outlook that causes an individual to significantly distort events, which generally leads to unreasonable conclusions about situations in the environment (Exner, 2001).

The HVI contains three separate criteria that address human content: 1) H+(H)+Hd+(Hd) > 6; 2) (H)+(A)+(Hd)+(Ad) > 3; 3) H+A:Hd+Ad < 4:1. Just as with human responses, there are four codes that pertain to animal content (A, Ad, (A), or (Ad)). The sum of all human content is thought to reflect interest in others. The sum of all imaginary human and/or animal content is considered an index of a person relating to others in a fantasying manner. People who see only part human or animal figures are believed to be more guarded (Exner, 1993). The final criterion, Cg, is coded whenever there is a percept of any article of clothing. Interpretatively, when there are more than three responses that contain a content code of Cg, it symbolizes the need for protection (Rose et al., 2001).

In order for special scores GHR and PHR to be present, they require one of the following: 1) H content (H, Hd, (H), (Hd), Hx); 2) or an M in the Determinants; or 3) FM with a COP score. There is a hierarchy of criteria for determining whether a GHR or PHR

is assigned (Exner, 2001). These special scores represent an individual's perceptions of others (Burns & Viglione, 1996).

Interpersonal Relatedness (as measured by the Rorschach) and maltreatment.

Leifer et al. (1991) did not find Isolation Index values, EA, the number of human content codes, or Zf, each of which is contained on the CDI or HVI respectively, to differ between sexually abused children and medically ill children between the ages of 5 and 16. Ornduff et al. (1999) examined special scores AG and COP; they also created a joint code of AG and COP, which they termed "malevolence." The researchers explained that the AG/COP code is scored for responses in which cooperative, mutual interaction between two or more animate objects is violent or aggressive in nature. The results indicated females (ages 6-15) who had been sexually abused were differentiated from non-abused youth by responses that combined both the AG and the COP. However, the groups did not differ in the number of COP or AG responses alone. The researchers concluded that although the absence of COP/AG does not rule out the possibility of childhood sexual abuse, their findings suggest that the presence of COP/AG may indicate a positive history of childhood sexual abuse. Suggestions were also made to include both males and females in future research, as well as include children exposed to other forms of maltreatment.

Investigations related to SumT have linked the absence of tactile responses to adverse early experiences (Leavitt, 2000). In an earlier study, Leura and Exner (cited in Leavitt, 2000) had found that 63% of children who had been in foster care most of their lives produced T-less protocols, whereas only 9% of the protocols of children who had

not been removed from their homes were devoid of a texture response. Clinton and Jenkins-Monroe (1994) found that the number of T responses produced by children who had been sexually abused was significantly below the mean of the normative sample.

Holaday et al. (1992) found that children and adolescents diagnosed with PTSD were more likely than the normative group to have a positive CDI. Among the variables contained on that constellation, the trauma group had lower EA and less special scores of COP. They also had higher Zf (one of the criteria on the HVI). Holaday and Whittenberg (1994) noted that 49% of the participants who had suffered burns and endured painful treatment over an extended period of time met four or more criteria on the CDI (compared to 6% in the general population) and 11% had positive HVI (compared to 0% in the general population). Among the variables contained on the CDI, 86% had lower SumT, 69% had a lower EA, 60% had less aggressive content (AG), 55% had less cooperative movement (COP), and 26% had lower AdjD. For variables pertaining to the HVI, there were less texture responses, with many of the participants having T-less protocols; there was also significantly more White Space (S). The response patterns were the same three years later for a subset of the original participants (Holaday, 1998). Although Holaday (2000) did not find that traumatized individuals produced more or less texture responses than the general population, their SumT was significantly higher than the clinical group. Thus, the clinical group actually had less texture responses than either the traumatized or the normative group. Black (2003) found that the HVI effectively discriminated between the abused and non-abused groups.

Studies using adult samples have found that T-less protocols are more prevalent among women with histories of sexual abuse. For example, one study found that women who had been sexually abused had a mean of .47 Texture responses, compared to a matched control sample who produced an average of 1.59 Texture responses (Owens cited in Leavitt, 2000). Similarly, Leavitt and Labott (1996) found that 65% of the protocols from women with a history of sexual abuse did not contain the determinant of T, whereas there were only 23% T-less protocols among women without a history of sexual abuse.

Some research findings have actually suggested the possibility that the number of responses involving texture actually increases following the dissolution of a relationship (Exner, 1995). Thus, rather than the absence of texture responses, it is possible that there would be a greater number of texture responses among individuals who have been troubled by long-standing emotional deprivation or those who experienced recent emotional loss. For example, Leavitt (2000) highlighted a study in which women who had recently had been divorced or separated from their husbands had a mean of 3.57 Texture responses (Exner cited in Leavitt, 2000).

Leavitt[4] (2000) investigated the concept that texture sensitivity is developmentally tied, with texture productivity moderated by age of onset of the trauma. The researcher examined SumT of women grouped according to whether they had a history of sexual abuse but without a period of amnesia for the abuse, a history of rape after the age of 18 and no sexual abuse prior to age 12, a history of childhood sexual abuse based on

[4] The Rorschach was administered and scored according to standard Beck directions.

memories recovered as adults, or no history of sexual abuse. There was a higher prevalence of T-less protocols among women who had been sexually abused as children compared to women with clinical histories who had not been sexually abused during their childhood; 63% of women who had been sexually abused with no memory suppression, 78% of women who had been sexually abused, but did not remember the abuse until adulthood, 26% of women who had been sexually assaulted in adulthood, and 18.5% of the women without histories of childhood sexual abuse had a SumT of zero.

In another Rorschach study using an adult sample, both MOR and AG which are contained on the TC/R, were found to be highest among women with more severe histories of sexual abuse; values were next highest for women with histories of less severe abuse, and least elevated for women without histories of abuse (Kamphuis et al. 2000). Kaser-Boyd (1993) found that women who murdered their domestic male partners after having experienced domestic violence for several years prior in that relationship did produce less texture responses; however, they had more texture determinants than in-patients who met the criteria for HVI. Contrary to the researcher's predictions, the women did not have more AG, less COP, or higher scores on the Isolation Index compared to the normative sample. There were no differences in the average SumT for marines who suffered from PTSD and the normative sample (Sloan et al., 1996).

Talbott (2001) conceptualized variables, such as Texture responses and Special Scores COP and AG, as falling under what was labeled an Objection Relations construct. Multiple forms of maltreatment experiences did not relate to greater impairment in interpersonal perceptions and behaviors more than single maltreatment experiences.

However, individuals with a maltreatment history did have less Texture responses and COP Special Scores, and had more AG Special Scores compared to individuals without maltreatment histories. The type of maltreatment experience did not relate to the frequency of these variables. Talbott (2001) also examined the number of human content responses based on maltreatment experience. The researcher found that multiple forms of maltreatment experiences did not generate less interest in human interactions than single maltreatment experiences, and the number of human codes did not differ between physically abused and neglected children. In fact, all children in the study, including those who had been maltreated, were comparable to the normative sample in the number of Human Content responses they provided.

Although the HVI was not prominent in the maltreatment literature, one dissertation study (Bank, 2001) did find that a positive HVI was more common among the adolescents who had been sexually abused than non-sexually abused adolescents. However, Bank (2001) did not find differences according to abuse history on the CDI, COP/AG combined special scores, AG special score, or the Isolation Index.

Prediction of Rorschach findings related to Interpersonal Relatedness. The data prevalent throughout the literature suggest that the absence of texture responses might be indicative of the presence of traumatic interpersonal disruption early in an individual's life (Weber, Meloy, & Gacono, 1992). The absence of texture is the first criterion on the HVI. Bank (2001) study suggests that individuals who have been sexually abused may be more likely to have a positive HVI. Moreover, personality characteristics such as being very alert, scanning the environment, being watchful of others, have been commonly

cited as symptoms of children who have been either physically or sexually abused. Therefore, an exploratory hypothesis will be put forth that a positive HVI will be indicative of more severe sexual or physical abuse.

Table 10

Rorschach Variables Related to Interpersonal Relatedness

Rorschach Variable
Coping Deficit Index (CDI)
EA < 6 **OR** AdjD < 0
COP < 2 **AND** AG<2
Passive > Active + 1 **OR** Pure H < 2
SumT > 1 **OR** Isolate/R > .24 **OR** Food > 0
GHR:PHR
Hypervigilance Index (HVI)
FT+TF+T = 0
Zf > 12
Zd > +3.5
S > 3
H + (H) + Hd + (Hd) > 6
(H) + (A) + (Hd) + (Ad) > 3
H + A: + Hd + Ad < 4:1
Cg > 3

Statement of the Problem

To date there have been very few empirical studies using the MMPI-A and Rorschach to assess the personality of adolescents who have been maltreated. Definitely, further research is needed to evaluate the efficacy of these instruments in the assessment of children who have been exposed to various forms of maltreatment. Moreover, since neither instrument has been thoroughly examined within this population, it raises the concern as to whether or not they are sensitive to the impact of the maltreatment experience. That is, can these two instruments effectively discern the unique experience of children who have been abused and neglected? Thus, as it stands now, it is not clear if the MMPI-A and Rorschach are sensitive to the impact of trauma or if they are constructed in such a way that places interpretation at risk for overpsychopathologizing a client. As noted in the Introduction, if a different pattern of responding is found among children who have been maltreated, it may indeed suggest that they have internalized the impact of the trauma and developed symptoms commensurate with a clinical disorder. Alternatively, adolescents with maltreatment histories might approach the task differently than the typical adolescent, and thus, alternative norms or interpretations may be necessary to account for these differences.

The current investigation addressed patterns of responses to both the Rorschach and MMPI-A, representing four areas of interpersonal and intrapersonal functioning (i.e., the *Self-System*, *Affective Regulation*, *Cognitive Processes*, and *Interpersonal Relatedness*) would elucidate elements of child abuse and neglect. Specifically, the

number and severity of maltreatment subtypes were the maltreatment attributes examined.

There is an underrepresentation of studies including other forms of maltreatment besides sexual abuse. There has also been limited consideration devoted to the impact of multiple forms of maltreatment as well as the severity of the various maltreatment experiences among adolescents. Even studies that have examined these maltreatment attributes have used other instrumentation. To that end, this study examined the individual and incremental validity of personality measures across four pre-selected construct areas. These four areas were identified as critical areas of an individual's overall functioning (Archer & Krishnamurthy, 2002) that might be most impacted by maltreatment. Thus, elevated scores would be expected to be indicative of an increased likelihood that the child experienced multiple forms of trauma with varying degrees. Since little empirical data are available for the individual predictive value of personality instruments with this population (Archer & Krishnamurthy, 2002), it is important to establish each instrument's utility separately. However, when multiple instruments are combined into one test battery, the validity of the battery depends on the extent to which each instrument accounts for unique variances in describing areas of functioning. Furthermore, Ganellen (1996b) proposed a distinction in the level of analysis between the MMPI-A and Rorschach. Accordingly, it is possible to examine the relationships between these two instruments at the level of the individual test scores or at the level of psychological constructs. Ganellen contended that a psychological construct could be defined on the basis of empirical research demonstrating that a specific configuration of

tests scores is associated with the construct. Empirical research would then be able to select scales on the MMPI-A related to one domain and similarly to identify Rorschach variables and indices relate to that construct. Ganellen (1996a) further argued that researchers are likely to miss important clinical relationships if analyses are limited to examining associations among scales and variables only utilizing a single instrument. In a study examining the convergent validity of the MMPI-A and Rorschach, Krishnamurthy et al. (1996) conducted analyses across the two instruments based on the related constructs.

Following along these lines, the first set of research questions addressed whether or not scales and variables from each instrument independently relate to specific maltreatment characteristics; that is, do selected scales and variables organized according to one of four personality constructs predict the number of maltreatment subtypes or the severity of the four maltreatment types (i.e., *Physical Abuse, Sexual Abuse, Neglect, Emotional Maltreatment*). Should any of the corresponding sets of MMPI-A scales and Rorschach variables measuring each of the four constructs significantly predict the number and/or severity of maltreatment subtypes, additional analyses would be employed to determine if the two instruments together increased the effectiveness of discerning maltreatment attributes. If there were to be certain MMPI-A scales and Rorschach variables that related to clients' experiences with abuse and neglect, there would be greater confidence in the use of these measures in the assessment of adolescents who have maltreated. Furthermore, the findings may ultimately help therapists have a better understanding of the adolescents' experiences and thus lead to more effective and

focused therapy. West (2000) emphasized that the focus should not be on entire instruments discriminating among different reference groups. That would be nearly impossible due to the multidimensionality and heterogeneity of the measurement. However, research is needed to ensure that measures being used are appropriate for a given population.

Research has demonstrated that there are individual differences in how people respond to trauma and maltreatment, and that some of the differences are accounted for by various attributes (e.g., duration, severity, multiple accounts, etc. (Conte & Schuerman, 1987). This would indicate the need for assessment tools that are sensitive to the functioning of individuals who have experienced different maltreatment attributes.. Although, interview data are the most direct means of obtaining information regarding functioning, several concerns exist when using verbal reports alone for assessing the impact of traumatic events. Some researchers have noted that when allegations are made, clinicians often must determine the likelihood that some form of maltreatment and/or trauma occurred based on assessment data measuring the child's intrapersonal and interpersonal functioning (Holaday, 2000; Kamphuis et al., 2000; West, 2000). At the present time, the psychometric soundness of these instruments in instances of childhood trauma has not been confirmed, and there have been challenges as to whether or not they should even be used when making clinical decisions, and they certainly should not be used for substantiating claims (National Clearinghouse, 2002).

There are two major reasons why this study is a useful and important addition to the literature. First, this study examined two instruments that are commonly used during

psychological assessment of individuals who have been maltreated, yet the personality measures have not been validated with this population. Second, the results of this study may assist clinicians in understanding the experiences of individuals who have been maltreated in order to help guide treatment. This is an especially important area because of the secrecy and shame that often translate into an adolescent's unwillingness to describe his or her abuse. In therapeutic settings, clinicians might have time to develop a close relationship with the abuse victim and the individual may eventually reveal that they were subjected to abuse or neglect. However, in forensic evaluations, assessment is generally limited to one session, yet decisions are made that impact the child's placement and treatment planning. Therefore, in order to ensure that the MMPI-A and Rorschach are sensitive to different maltreatment experiences, it is important to examine the scales and variables relations with certain maltreatment attributes. Specifically, this study explored the utility of these personality instruments in predicting the number and severity of the four maltreatment subtypes.

CHAPTER THREE

Method

Participants

The participants were 157 adolescents--66 males and 91 females--ages 14 through 17-11, who were referred by Child Protective Services in central Texas for psychological evaluations. All adolescents were considered to be at-risk for potential harm, or there was a threat to their safety and well-being. The primary purpose of the assessment was to provide information that would be useful in the diagnosis, treatment, and placement of the adolescent being evaluated. The adolescents represented a culturally diverse group of individuals, and were often from low-income families.

The final sample was selected through a multi-step process. First, an initial sample of 530 records was obtained through a database identifying the clients' dates of birth. Next, two graduate students employed by the agency examined each file to determine if the individual had completed an MMPI-A. This phase reduced the sample to 200 because adolescents evaluated prior to October 1999 had been administered the MMPI with adolescent norms. The third step involved a review to determine the selection criteria for the sample. The first inclusion criterion was that the file contained an MMPI-A completed response sheet, a Rorschach protocol, and information related to the client's history of maltreatment. The second criterion was that the participant had a Full Scale IQ score of at least 70. The third criterion was the participant had a reading ability at the 6th grade level or above, based on the reading test score on a standardized assessment instrument. If the individual had an IQ above 70, but a reading score below that of the 6th

grade, then the items had to have been administered orally. Another inclusion criterion was that the client produced a valid MMPI-A profile, which was defined as having a *Cannot Say* score less than 12 (i.e., no more than 12 items are omitted) and TRIN and VRIN *T-scores* below 75 (Archer, 1997b). The other validity scales were not used as exclusionary criteria because they have been found to relate to specific response patterns of individuals during forensic evaluations (Pinkerman et al., 1993) or who have been sexually abused (e.g., Elhai, Klotz-Flitter, Gold, & Sellers, 2001). Rorschach protocols were considered valid if they contained at least 14 responses. After reviewing the records for the exclusionary criteria, 10 adolescents had IQ scores lower than 70, 5 adolescents did not have the MMPI-A answer sheets, 4 adolescents did not have a Rorschach in their folder, 8 adolescents were noted to have invalid or incomplete MMPI-A protocols, 6 adolescents were missing information containing their maltreatment history (most generally not having the report in the file), and 3 adolescents had produced less than 14 responses to the Rorschach. Seven adolescents were later eliminated from analyses due to no evidence of any maltreatment in their histories. Therefore, all remaining participants had at least one maltreatment experience reported in their history.

The demographic breakdown of the final sample (n = 157) was as follows. Participants' ages ranged from 14-0 to 17-11. The mean age of the participants was 15.70, with a standard deviation of 1.03. Since a FSIQ of 70 was the cutoff for inclusion, the IQ of all participants ranged from 70-129, with a mean of 93.3 and a standard deviation of 12.46. The range of scores for the VIQ was 63-121 (M = 90.68, SD = 13.02). The range of scores for the PIQ was 66-136 (M = 97.55, SD = 12.82). The mean standard

reading score was 93.26, with a standard deviation of 15.12; standard scores on the reading measures ranged from 40-138. There was no information available for the ethnicities of 44.6% of the sample. For the remaining participants there were 26.8% Caucasian, 8.9% Black, 17.8% Hispanic, 1.3% Asian, and .6% Bi-cultural.

All adolescents had been maltreated. In regards to the particular maltreatment experiences, 1.3% were coded as *Physical Abuse* only, .6% as *Sexual Abuse* only, 6.4% as *Neglect* only, and 5.7% as *Emotional Maltreatment* only. Thus, 14.01% of the sample had only one type of maltreatment in their history based on the available records. The most common combination of maltreatment types was *Physical Abuse*, *Neglect*, and *Emotional Maltreatment*, with 26.1% of the sample identified with these experiences. Table 11 provides demographic information and the breakdown of participants into their assigned maltreatment classification group.

Table 11

Demographic Information

	Frequency (%)	Mean	SD
1. Age		15.687	1.029
14	33.1%		
15	25.5%		
16	24.8%		
17	16.6%		
2. Gender			
Male	42.0%		
Female	58.0%		
3. Maltreatment Classification			
PA	1.3%		
SA	.6%		
NEG.	6.4%		
EM	5.1%		
PA and SA	1.9%		
PA and NEG	8.3%		
PA and EM	4.5%		
SA and NEG	3.8%		
SA and EM	3.2%		
NEG and EM	12.7%		
PA, SA, and NEG	3.8%		
PA, SA, and EM	3.2%		
PA, NEG, and EM	26.1%		
SA, NEG, and EM	6.4%		
PA, SA, NEG, and EM	12.7%		
4. Ethnicity			
Asian	1.3%		
Black	9.6%		
Caucasian	28.7%		
Latino	17.8%		
Unknown	42.7%		

Note: PA = *Physical Abuse*; SA = *Sexual Abuse*; NEG = *Neglect*; EM = *Emotional Maltreatment*

Primary psychiatric diagnoses of the sample included Depression, NOS (10.5%), Disruptive Behavior Disorder, NOS (9.9%), Dysthymia (*n* = 15, 9.9%), and Posttraumatic Stress Disorder (8.6%). Seventy-Eight percent presented with a secondary diagnosis. Eleven percent had symptoms that were characteristic of an Axis II diagnosis. Table 12 provides the breakdown of the primary and secondary diagnostic classifications assigned to the participants.

Table 12

Diagnostic Information

Diagnostic Classification	**Primary Diagnosis (%)**	**Secondary Diagnosis (%)**
Attachment Disorder		.6%
Major Depression, Single Episode	7.9%	1.9%
Depression, NOS	10.5%	17.8%
Major Depression, Recurrent	7.9%	3.8%
Oppositional Defiant Disorder	5.9%	5.7%
Conduct Disorder	5.3%	3.2%
Cannabis Dependence	1.3%	3.2%
Disruptive Behavior Disorder, NOS	9.9%	7.6%
Adjustment Disorder, Anxious	3.3%	.6%
Adjustment Disorder, Depression	2.0%	.6%

Table 12

Continued

Diagnostic Classification	Primary Diagnosis (%)	Secondary Diagnosis (%)
Adjustment Disorder, with Mixed Emotional Features	1.3%	.6%
Adjustment Disorder, Mixed Mood and Conduct	8.6%	1.3%
Generalized Anxiety Disorder		3.2%
Posttraumatic Stress Disorder	8.6%	4.5%
Anxiety Disorder, NOS	1.3%	3.2%
Paraphilia	.7%	
Attention Deficit Disorder-Combined	3.9%	7.6%
Attention Deficit Disorder-Predominately Hyperactive		.6%
Bipolar Disorder	1.3%	1.3%
Bipolar Disorder with Psychotic Features		.6%
Dysthymia	9.9%	7.0%
Polysubstance Abuse	.7%	1.9%
Hypochondriasis	.7%	
Psychotic Disorder, NOS	.7%	
Schizoaffective Disorder	.7%	
No Diagnosis	1.3%	

Instruments

Maltreatment Classification System (MCS)

The Maltreatment Classification System (MCS) provided operational definitions of maltreatment subtypes and exemplars of most of the levels of severity for each subtype. Additionally, it included measurement of onset, frequency, and chronicity of each subtype, the developmental period(s) during which each subtype occurred, severity of each subtype, and perpetrator(s) within each subtype. These variables provide a fertile depiction of the maltreatment histories of children, thereby providing insight into the connectedness of their maltreatment experiences, and thus facilitating empirical scrutiny of both the singular and the blended factors of each facet.

Interrater agreement has been documented as being adequate. For example, Manly et al. (2001) obtained kappas of 1.0 for sexual abuse, .94 for physical abuse, .78 for emotional maltreatment, and a range of .79–.85 for the types of physical neglect (moral–legal–educational maltreatment, lack of supervision, and failure to provide).

Coding. Adolescents' maltreatment experiences were coded by two doctoral graduate students utilizing the MCS (Barnett et al., 1993). The coding was based on information provided in each person's psychological evaluation, intake report, or court affidavit. Adolescents' experiences were classified according to subtypes, developmental periods, severity, and perpetrator. A single report could contain multiple subtypes. For each subtype, the seriousness of the maltreatment incident was coded on a Likert scale, with '1' representing less severe incidents, and progressing up to '6' for the most serious events. Anyone with a '6' would have been eliminated because the abuse would have

resulted in malformation. Although there were no such occurrences in this sample, a 6 would have also been coded in instances in which abuse resulted in a fatality. The severity ratings are characterized by a continuum within each subtype, with descriptors and exemplars at each scale point to provide guidelines for reliable coding by raters. Children who did not experience a particular subtype were coded 0 on that dimension. In order to provide clarification on the nature of *Emotional Maltreatment*, a modification of the MCS was used. Adolescents were excluded from analysis when the level of severity for a particular maltreatment subtype could not be discerned from the records.

Reliability check. During the coding process, a second rater coded records for 20% (31 adolescents) for reliability purposes. For each subtype, weighted kappa statistics were calculated to account for assignment to subtype and severity coding. Disagreements in coding were resolved through discussion between the two raters. The kappa's for the different categories were as follows: .934 for *Physical Abuse*, 1.00 for *Sexual Abuse*, .928 for *Neglect*, Failure to Provide (FTP), .919 for *Neglect*, the Lack of Supervision (LOS), and .737 for *Emotional Maltreatment*. Intraclass correlations were computed to determine coder agreement for the level of severity. These correlations were .748 for the severity of *Physical Abuse*, .797 for the severity of *Sexual Abuse*, .938 for *Neglect*, FTP, .957 for *Neglect*, LOS, and .747 for *Emotional Maltreatment*.

Minnesota Multiphasic Personality Inventory for Adolescents (MMPI-A)

Since a large portion of the literature review was dedicated to coverage of the MMPI-A, this description will be focused primarily on reliability data. The MMPI-A is a true-false self-report measure designed to assess a number of the major patterns of

personality and emotional disorders. There are a total of 468 items on the MMPI-A, to which the test-taker responds either “True” or “False.” The items' subject content can be grouped into ten basic scales, eight of which came from Hathaway and McKinley's original criterion group of psychiatric patients, and two additional scales, Scales 5 (MF: Masculinity-Femininity) and 0 (Si: Social Introversion). To protect against misinterpretation of spurious responses, several validity scales were designed. These scales assess test-taking attitude and whether the examinee took a normal, honest approach to the test. Common uses for the MMPI-A include aiding in the formulation of psychiatric diagnoses, helping psychologists gain an overall view of a client's personality traits and types, and generating hypotheses about problems, interaction styles, and coping skills (Archer, 1997b).

The adolescent version of the most recent MMPI, the MMPI-A, was normed using a sample of adolescents from multiple sites located within communities across eight states. Test-retest correlations in the standardization sample for the validity scales ranged from .49 to .75, for the clinical scales from .65 to .84, and for the content scales from .62 to .82. Internal consistency for the various scales in the normative sample ranged from .58 to .90 for the validity scales, from .40 to .89 for the clinical scales, and from .55 to .83 for the content scales. In the clinical sample, internal consistency ranged from .53 to .83 for the validity scales, from .35 to .91 for the clinical scales, and from .63 to .85 for the content scales (Archer, 1997b).

Scoring. Raw scores for the 69 MMPI-A scales were obtained by hand scoring the test protocols. Templates for each scale were placed over the answer sheet, and the number of darkened spaces was counted, representing the raw score of the scale being

tallied. Precaution was taken to ensure that the individual scoring the protocols used the correct scoring key for Scale 5 (Mf: Masculinity-Femininity) since there are two separate templates depending on the respondent's sex. Additionally, the TRIN (True Response Inconsistency) and VRIN (Variable Response Inconsistency) were scored using separate recording grids.

Scoring of the MMPI-A consisted of two phases using the following procedures. The basic validity and clinical scales were routinely hand scored and converted to *T-Scores* for purposes of the clinical evaluation at the agency. Therefore, the initial phase had already been accomplished. During the first phase, a trained administrative assistant obtained the raw score for the validity, clinical, and basic scales using the hand-scoring keys. Next, the non-K-corrected raw scores were converted to linear *T-scores* for each scale using the gender-specific adolescent norms. Linear *T-scores* were used as the test developers wished to maintain the natural skew that characterizes the response trends of adolescents in the general and clinical populations. The *T-scores* for the validity, clinical, and basic scales were then entered into a computer interpretative program.

The second phase involved two graduate students who had been trained in the administration and scoring of the MMPI-A. They each scored half the MMPI-A protocols. Hand scoring templates for the content scales, supplemental scales, and the Harris-lingoes clinical subscales were provided by the agency in which both are employed. Once raw scores were obtained, they were converted to *T-scores* using the specialized answer sheets based on the respondent's gender.

For the MMPI-A, *T-scores* between 60 and 65 are considered to be in the "at-risk" range and scores above 65 are considered to be in the "clinical" range. The at-risk range was delineated because adolescents from the clinical norm group were less likely to endorse items; thus, even adolescents with histories of psychopathology were not scoring in the clinical range (Krishnamurthy & Archer, 1999; Williams et al., 1992). Scores were transferred for scales that appeared on the Structural Summary form. Krishnamurthy and Archer (1999) conducted an analysis comparing two interpretive approaches for the structural summary. One way was to tally the number of scales on each factor with scores about 60 (or some scales had negative loadings, so scales are identified as clinically noteworthy if they fall below 40), the other was to compute an average *T-score* for all the scales that load onto each factor. The researchers did not find differences in their conclusions according to the method of interpretation. Therefore, the analyses for this study will utilize the mean *T-score* approach in order to account for all scores from each factor, rather than just the ones in or above the "at-risk" range.

Reliability check. To reduce the potential for clerical error, 20% (32) of the MMPI-A protocols were randomly selected to be scored twice. Four graduate students volunteered to score a range of 8 to 10 MMPI-As. These graduate students only scored the content, supplemental, and clinical subscales. Another person volunteered to score the basic and validity scales for all of MMPI-A protocols. Any discrepancies in scoring were verified and corrected due to the objective nature of the instrument. Any responses deemed too lightly marked or dual-marked, were considered unscorable, as per the

instructions of the MMPI-A scoring procedures. Accordingly, these items were tallied into the *Cannot Say* score. Overall scoring accuracy was 97%.

Rorschach Ink Blot Technique

The Rorschach was administered and scored in accordance with the guidelines established by Exner in the Comprehensive System (2001). When Exner first developed his scoring system, he made the decision that only categories with an interrater reliability at or above .85 would be included in the system when examining profiles. Weiner (1997), using Anastasi's (1988) definition of psychometric soundness, noted that an instrument is considered psychometrically sound when: "(a) trained examiners can reach reasonable agreement in scoring its variables; (b) estimates of its reliability indicate that it provides reasonably accurate information– 'obtained scores' closely approximate 'true scores;'(c) its demonstrated corollaries identify purposes for which it is reasonably valid; and (d) normative data describing its descriptive statistics among various populations are adequate to allow comparisons of individuals to appropriate reference groups" (p. 6).

Numerous adult and child Rorschach studies using Exner's Comprehensive System have been conducted to assess test-retest coefficients. Most of these studies have focused on the stability of the structural variables and limited attention has been paid to content codes. In a meta-analysis of temporal stability of the Rorschach, Gronnerod (2003) concluded that among the variables being examined in the current study X-% (r = .91) and SumT (r = .91) had the strongest test-retest reliabilities, followed by cognitive special scores (r = .86), Form Dimension (r = .86), and the Egocentricity Index (r = .85). Consistent with previous findings, other variables that had adequate temporal consistency

(greater than .75) were the number of responses (R), Afr, FC, Human Movement (M), EA, CF+C, and Lambda. The lowest test-retest data are found with SumY and inanimate movement (m); however, these variables have been linked with being situationally-related, which would help explain the weak relation across multiple administrations. Moreover, although some findings have resulted in coefficients as low as .23 for these two variables (Garb et al., 1999), Gronnerod (2003) found that across an aggregate of 11 CS samples, m had a test-retest coefficient of .53 and Y was .40.

Scoring. An overview of the scoring process and variables were described in previous chapters of this document. Exner's (2001) Comprehensive System was the basis for both administration and scoring. The primary scoring categories are: 1) Location (which part of the blot did the response occur?); 2) Developmental Quality (the quality of processing involved in forming the answer); 3) Determinants (what characteristics of the blot make it look that way?); 4) Form Quality (does the area of the blot really conform to the form requirements of the object specified?); 5) Contents (category to which the reported objects belong); 6) Organizational Activity (how are relationships established between objects in the stimulus field?); and 7) Special Scores (unusual characteristics present in the response).

Reliability check. Interrater reliability estimates were derived for the Rorschach variables examined in this study, as well as for Response Frequency, Location, Developmental Quality (DQ), Form Quality, Popular Responses, and Special Scores. This computation was based on the data from 31 (20%) records that yielded 534 responses. Kappa coefficients were computed to correct for chance agreements for the

above scoring categories. For continuous variables that were normally distributed, intraclass correlation coefficients were obtained.

The kappa's for the different categorical scoring segments were as follows: .933 for Location, .931 for Developmental Quality (DQ), .784 for Form Quality (FQ), .922 for Organizational Frequency (Zf), and .784 for the Hypervigilance Index (HVI). The following intraclass correlation coefficients were also obtained: Egocentricity Index (.91), Isolation Cluster (.924), Human Content (.967), Affective Ratio (1.00), Blends (.961), Response Frequency (R; 1.00), Popular Responses (p; .896), Organizational Efficiency (Zf; .941), and the Weighted Sum of the Special Scores (Wsum6; 773). Intraclass correlation coefficients for the color and shading determinants ranged from .619 (Pure C) to .938 (SumC'). Reliability estimates for the constellations were .574 for the Perceptual Thinking Index (PTI), .669 for the Depression Index (DEPi), and .824 for the Coping Deficit Index (CDI). Reliability estimates for the special scores of Morbid (MOR), Good Human Response (GHR), Poor Human Response (PHR), Cooperative Movement (COP), and Aggressive Movement (AG) were .932, .886, .735, .907, .91., respectively.

Reading Ability

Each participant's reading ability was determined via one of four standardized reading instruments, all of which have been found to have adequate reliability and validity. Additionally, all four measures are based on standard scores, which have a mean of 100 and a standard deviation of 15.

As part of the assessment battery used, the Woodcock-Johnson Tests

of Achievement-Revised (WJ-R) had been routinely administered through April 2002. All raw scores were manually entered into the WJ-R computer-scoring program and converted to standard scores. In April 2002, changes were made to the assessment battery in an effort to create a more efficient assessment process and to include more current instrumentation. Accordingly, some examinee's were administered the Wechsler Individual Achievement Test Screener. After obtaining raw scores based on the client's responses, the examiner converted the scores to standard scores. In some cases, older adolescents (i.e., clients who were 17 years of age) were administered the Wide Range Achievement Test-Third Edition (WRAT-3). Beginning in June 2002, most adolescent clients were administered the WIAT-II screener, which is an updated version of the WIAT.

Procedure

Test Administration Procedures

All adolescents were administered relatively identical batteries that included a measure of cognitive functioning (Wechsler Intelligence Scale for Children-Third Edition, Wechsler Adult Intelligence Scale-Third Edition, or Wechsler Abbreviated Scale of Intelligence), a measure of academic functioning (WJ-R, WIAT, WRAT-3, or the WIAT-II), as well as the Bender Visual Motor Gestalt Test, Rorschach Ink Blots (Exner Scoring System), selected cards from the Thematic Apperception Test (TAT), Minnesota Multiphasic Personality Inventory-Adolescent (MMPI-A), House-Tree-Person (H-T-P) with Protocol, and Kinetic Family Drawing (KFD).

The order in which each of these separate assessment techniques were administered varied to some degree. Most adolescents completed the MMPI-A after having finished all other measures. However, at one location, the main office, the MMPI-A was typically completed prior to the clinical interview, whereas at the other four sites, the interview was generally conducted first. It seems unlikely that this difference in instrument order should affect the validity of the measures used in this research.

From October 1999 through January 2003, there were ten examiners. All had completed at least 50 hours of graduate study in a clinical, counseling, or school psychology program. All were currently enrolled in a doctoral level educational psychology program or were of post-graduate education status. Each examiner had received formal training in intellectual and emotional assessment. Training was provided for any instruments not already taught in the students' graduate coursework or for newly released instruments by a doctoral-level licensed psychologist. On-site training also involved sitting in on one or two assessment sessions (depending on prior experience) and subsequently being observed by an advanced graduate student, post-doctoral trainee, or licensed psychologist. Doctoral-level licensed psychologists reviewed the protocols for accuracy of scoring and individually supervised examiners on an "as-need" basis.

Human Subjects Approval

The Internal Review Board (IRB) at the University of Texas at Austin approved the procedures for this study in March 2003. It was classified as exempt because the data was based on archival records rather than active participant recruitment. Clients were

informed of their rights to confidentiality and anonymity at the time of the evaluation, and parents completed consent forms to proceed with the evaluation.

Records Review

In order to ensure anonymity of the clientele, no identifying information was recorded from the records. The two graduate students completed an archival review of each file in order to obtain each adolescent's psychosocial history (e.g., gender, ethnicity, grade, age, maltreatment history, diagnosis, legal history, and substance abuse history). The specific items of information were obtained from the psychological evaluation, intake report, or court affidavit.

Variable Selection

When using the MCS to delineate maltreatment subtypes, Manly and colleagues (2001) found that sexual abuse was never coded alone. Therefore, for purposes of speculation and interpretation, a cumulative model of trauma was applied. For example, in individuals who experienced various forms of maltreatment, it was expected that they would be characterized by more impaired personality functioning than individuals with only one maltreatment experience. The MMPI-A scales and Rorschach variables were selected based on their theoretical relevance to one of the four constructs. Due to the large number of possible variables, whenever possible, MMPI-A factors or Rorschach constellations were first examined. In order to examine the clinical and psychometric utility of including both the MMPI-A and the Rorschach in a psychological evaluation of children with different maltreatment histories, there were two primary questions posed for this study: 1) Do MMPI-A scales/Rorschach variables organized according to one of

four constructs (i.e., the *Self-System, Affective Regulation, Cognitive Processes,* and *Interpersonal Relatedness*) predict the number and severity of maltreatment subtypes; and 2) Does either instrument add information above and beyond the other one; that is, is there incremental validity in these measures' abilities to predict the number and severity of maltreatment subtypes. The predictive models are presented in the figures below. The figures are arranged in sets of blocks. The independent variables are the blocks of MMPI-A or Rorschach variables measuring the four construct areas. The dependent variables are listed to the right of the figure; they are the number and severity of maltreatment subtypes.

Figure 3.1a. The predictor variables related to the *Self-System* (as measured by the MMPI-A):

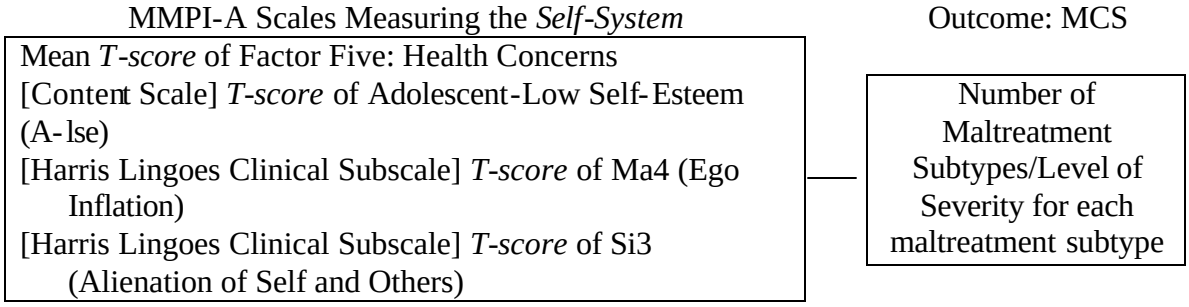


Figure 3.1b. The predictor variables related to the *Self-System* (as measured by the Rorschach):

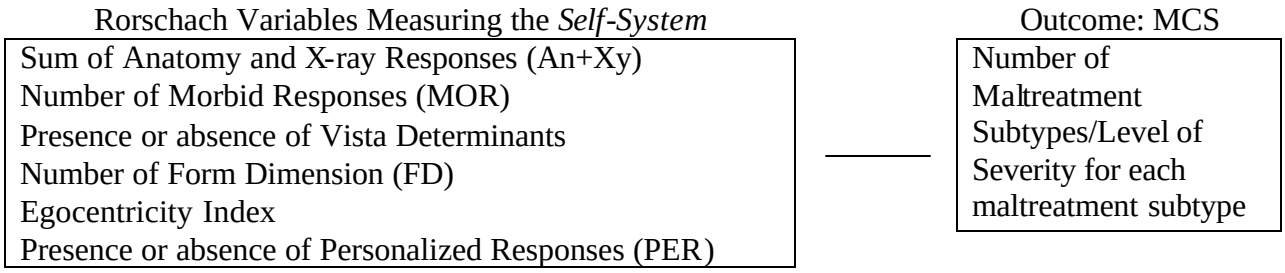


Figure 3.2a. The predictor variables related to *Affective Regulation* (as measured by the MMPI-A):

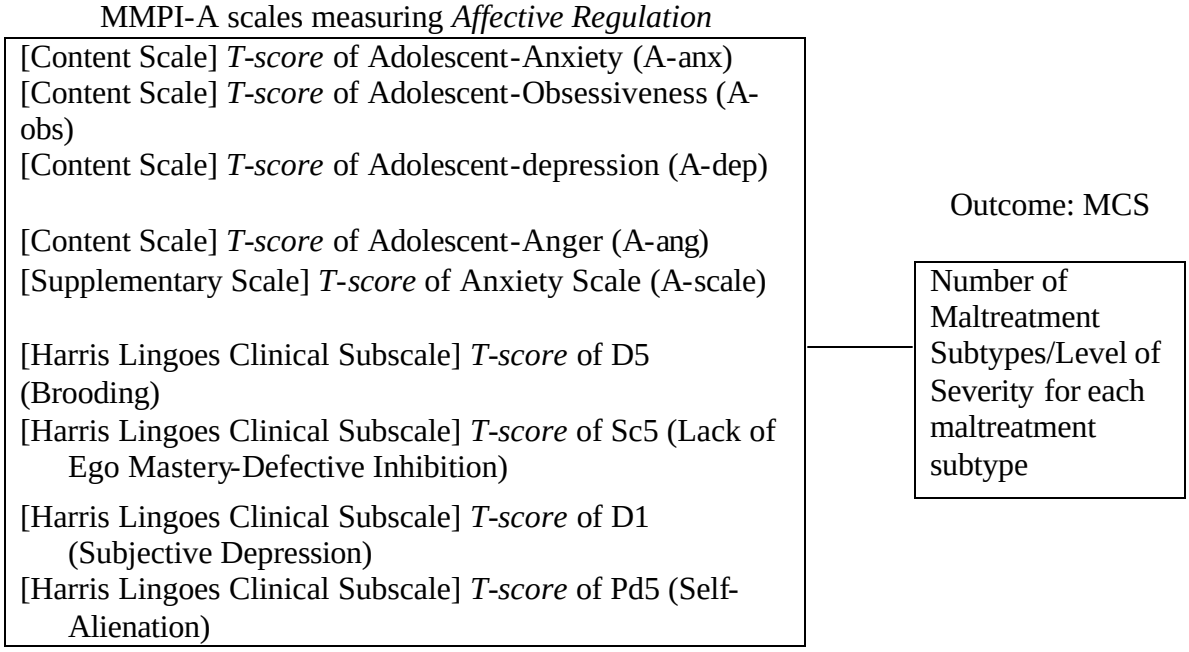


Figure 3.2b. The predictor variables related to *Affective Regulation* (as measured by the Rorschach):

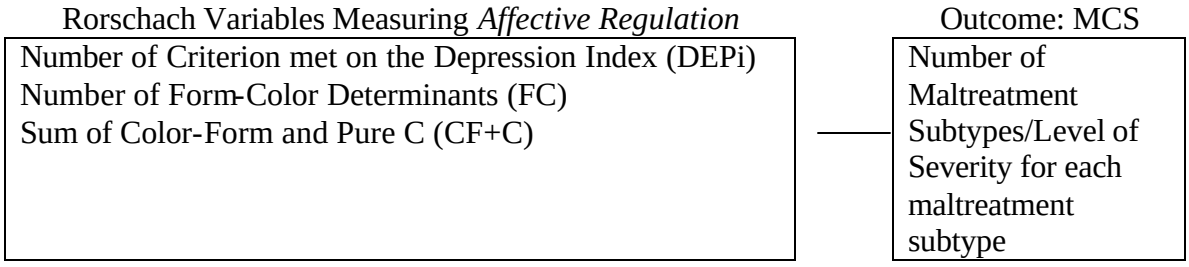


Figure 3.3a. The predictor variables related to *Cognitive Processes* (as measured by the MMPI-A):

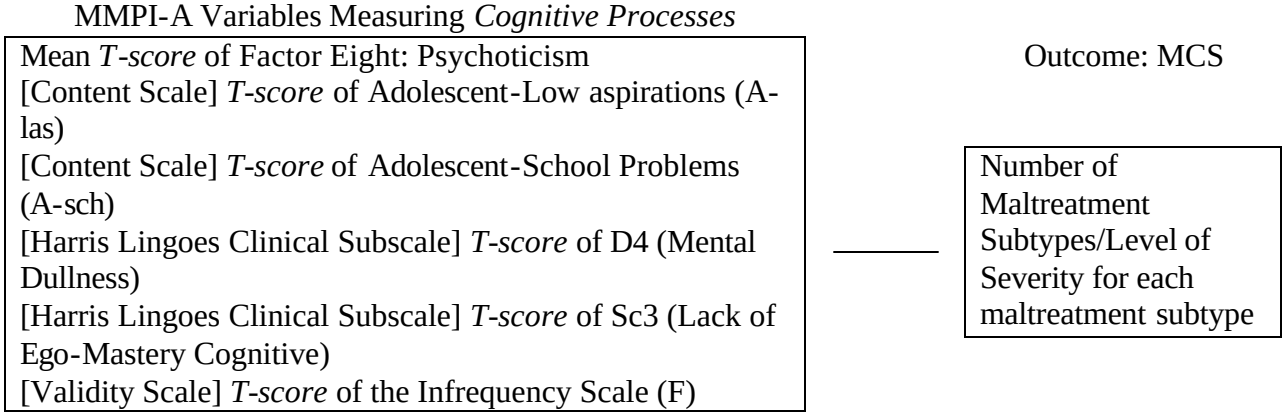


Figure 3.3b. The predictor variables related to *Cognitive Processes* (as measured by the Rorschach):

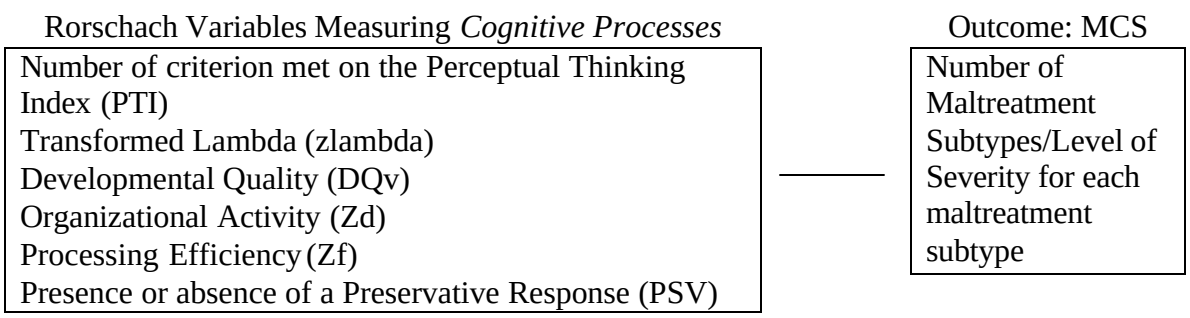


Figure 3.4a. The predictor variables related to *Interpersonal Relatedness* (as measured by the MMPI-A):

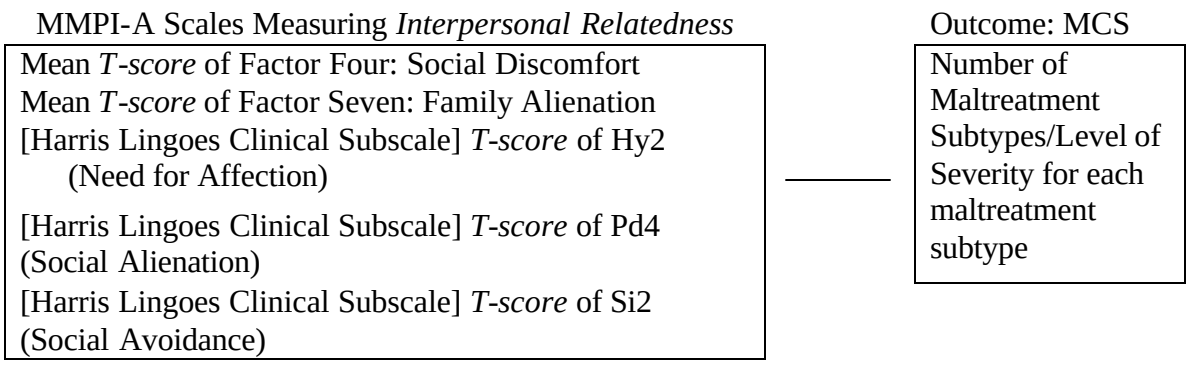
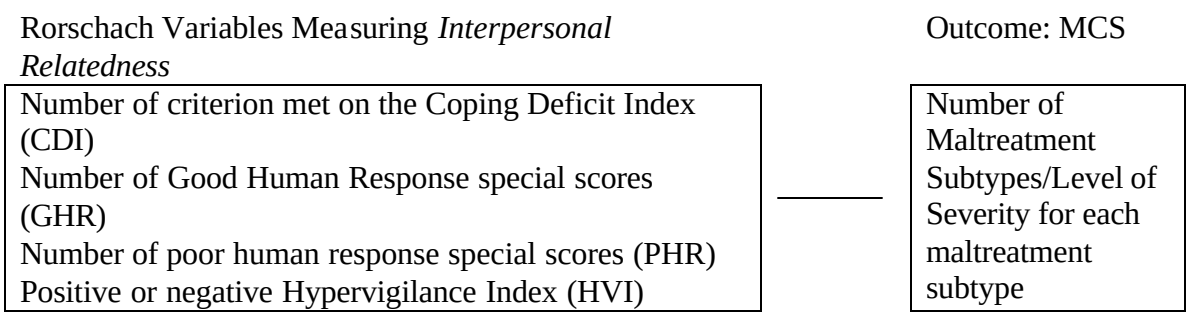


Figure 3.4b. The predictor variables related to *Interpersonal Relatedness* (as measured by the Rorschach):



CHAPTER FOUR

Results

The first part of this section presents descriptive statistics and correlation analyses. After descriptive data are presented, the research questions, hypotheses, and findings of both instruments are organized according to the four construct areas. There is a hypothesis for each research question. In some cases, there are exploratory subhypotheses presented predicting the relation between individual scales or variables within the set and the particular maltreatment attribute (i.e., the number or severity of maltreatment subtypes). The findings highlight whether the hypothesis was supported. If the model was not significant, then there was no further consideration given to the supplemental hypothesis. If the predictor model was significant, then it was appropriate to proceed to an inspection of the relative contribution of each individual variable. If the MMPI-A scales and Rorschach variables measuring the same construct significantly predicted the same maltreatment attribute, then incremental validity of the two corresponding sets of factors was examined. The data are presented in table format following the narrative of the findings for each research question.

Descriptive Statistics

Descriptive data were obtained for the MMPI-A and Rorschach. An examination of the relative distribution of the scales and variables was done to determine if they violated the assumption of normality required for correlation analyses. Curran, West, and Finch (1996) suggested that distributions with a skew of 2.0 or more or kurtosis of 7.0 or more should be considered moderately nonnormal in shape. Any data that violated these

assumptions were converted to categorical variables or were subjected to a log transformation. A series of analysis on the descriptive data were also conducted. Multiple analyses of variance (ANOVAs) were used to examine any differences on the Rorschach and MMPI-A based on age, gender, and race. For Rorschach data that was categorical, chi-square analyses were used to determine if there were any variables more common to certain groups based on demographic characteristics. Additionally, Correlations of age, the number of maltreatment subtypes, the severity of each maltreatment subtype, and IQ were also obtained to examine relations among these variables.

MMPI-A scales. Means, standard deviations, skewness, and kurtosis of the MMPI-A scales are presented in Table 13. The means for each of the MMPI-A scales were all within normal limits. The scores on the MMPI-A scales organized according to four personality constructs (i.e., the *Self-System*, *Affective Regulation, Neglect* and *Emotional Maltreatment*) did not differ according to age, gender, or ethnicity at $p<.01$.

Table 13

Descriptive Statistics for the Minnesota Multiphasic Personality Inventory-Adolescent

MMPI-A Scales	Min	Max	*M*	*SD*	Skew	Kurtosis
Validity Scales						
L (Lie)	37.00	106.00	59.229	13.225	.786	.596
F (Infrequency)	39.00	96.00	56.280	12.477	.919	.273
K (Defensiveness)	31.00	79.00	53.612	11.324	.319	-.580
Basic Scales						
Scale 1 (Hs: Hypochondriasis)	30.00	90.00	52.905	12.715	.510	-.100
Scale 2 (D: Depression)	34.00	89.00	56.764	11.735	.664	-.001
D1 (Subjective Depression)	30.00	80.00	53.325	11.605	.148	-.799
D2 (Psychomotor Retardation)	35.00	86.00	59.261	10.078	.083	-.341
D3 (Physical Malfunctioning)	30.00	67.00	52.631	10.141	-.339	-.891
D4 (Mental Dullness)	32.00	78.00	53.809	11.450	.222	-.784
D5 (Brooding)	31.00	79.00	56.019	11.742	-.039	-.815
Scale 3 (Hy: Hysteria)	30.00	94.00	54.242	12.061	.667	.404
Hy1 (Denial of Social Anxiety)	31.00	66.00	52.847	9.839	-.436	-.847
Hy2 (Need for Affection)	33.00	76.00	49.860	10.399	.374	-.380
Hy3 (Lassitude-Malaise)	33.00	87.00	54.312	13.019	.315	-.773
Hy4 (Somatic Complaints)	34.00	83.00	52.631	11.911	.470	-.500
Hy5 (Inhibition of Aggression)	30.00	81.00	49.828	10.720	.368	.054

Table 13

Continued

MMPI-A Scales	Min	Max	*M*	*SD*	Skew	Kurtosis
Scale 4 (Pd: Psychopathic Deviate)	30.00	94.00	59.503	13.111	.528	-.236
Pd1 (Familial Discord)	30.00	80.00	53.325	11.605	.148	-.799
Pd2 (Authority Problems)	35.00	86.00	59.261	10.078	.083	-.341
Pd3 (Social Imperturbability)	30.00	67.00	52.631	10.141	-.339	-.891
Pd4 (Social Alienation)	32.00	78.00	53.809	11.450	.222	-.784
Pd5 (Self-Alienation)	31.00	79.00	56.019	11.742	-.039	-.815
Scale 5 (Mf: Masculinity/ Femininity)	30.00	78.00	52.688	11.104	-.187	-.636
Scale 6 (Pa: Paranoia)	32.00	88.00	54.962	12.570	.505	-.335
Pa1 (Persecutory Ideas)	35.00	87.00	56.293	12.109	.273	-.628
Pa2 (Poignancy)	30.00	79.00	49.994	11.598	.253	-.688
Pa3 (Naiveté)	30.00	72.00	48.516	10.431	.460	-.574
Scale 7 (Pt: Psychasthenia)	30.00	84.00	50.242	13.150	.662	-.189
Scale 8 (Sc: Schizophrenia)	30.00	96.00	53.892	14.329	.683	-.061
Sc1 (Social Alienation)	30.00	86.00	54.370	12.661	.232	-.576
Sc2 (Emotional Alienation)	37.00	82.00	54.618	11.260	.475	-.830

Table 13

Continued

MMPI-A Scales	Min	Max	*M*	*SD*	Skew	Kurtosis
Sc3 (Lack of Ego Mastery-Cognitive)	36.00	82.00	53.229	11.932	.295	-.891
Sc4 (Lack of Ego Mastery-Conative)	34.00	78.00	53.962	11.571	.360	-.783
Sc5 (Lack of Ego Mastery-Defective Inhibition)	31.00	77.00	47.924	12.116	.461	-.764
Scale 9 (Ma: Mania)	30.00	89.00	52.134	12.685	1.011	.573
Ma1 (Amorality)	32.00	78.00	54.580	10.033	.093	-.477
Ma2 (Psychomotor Acceleration)	30.00	70.00	45.376	10.154	.224	-.775
Ma3 (Imperturbability)	31.00	83.00	54.694	10.632	.074	-.243
Ma4 (Ego Inflation)	30.00	75.00	50.789	11.115	-.077	-.664
Scale 0 (Si: Social Introversion)	30.00	83.00	49.319	11.322	.549	.446
Si1 (Shyness/Self-Consciousness)	30.00	74.00	46.599	10.370	.492	-.132
Si2 (Social Avoidance)	38.00	83.00	50.605	11.687	1.145	.536
Si3 (Alienation-Self and Others)	30.00	75.00	50.968	11.441	.050	-.842

Table 13

Continued

MMPI-A Scales	Min	Max	*M*	*SD*	Skew	Kurtosis
Content Scales						
A-anx (Adolescent-Anxiety)	30.00	89.00	53.274	13.078	.569	-.232
A-obs (Adolescent-Obsessiveness)	30.00	82.00	48.471	11.264	.650	-.146
A-dep (Adolescent-Depression)	31.00	87.00	52.624	12.531	.657	-.041
A-hea (Adolescent-Health Concerns)	34.00	84.00	53.955	11.621	.515	-.252
A-aln (Adolescent-Alienation)	33.00	99.00	53.166	12.483	.707	.462
A-biz (Adolescent-Bizarre Mentation)	36.00	89.00	51.573	12.294	.854	.148
A-ang (Adolescent-Anger)	30.00	88.00	50.134	12.543	.637	-.003
A-cyn (Adolescent-Cynicism)	30.00	81.00	51.764	11.610	.713	-.351
A-con (Adolescent-Conduct Problems)	30.00	96.00	51.395	12.715	.932	.994
A-lse (Adolescent-Low Self-Esteem)	33.00	88.00	51.733	13.094	.763	-.139
A-las (Adolescent-Low Aspirations)	34.00	88.00	51.949	11.292	.929	.541
A-sod (Adolescent-Social Discomfort)	32.00	84.00	50.599	11.877	.893	.602

Table 13

Continued

MMPI-A Scales	Min	Max	*M*	*SD*	Skew	Kurtosis
A-fam (Adolescent-Family Problems)	30.00	95.00	56.338	15.579	.493	-.631
A-sch (Adolescent-School Problems)	31.00	94.00	56.210	13.790	.467	-.308
A-trt (Adolescent-Negative Treatment Indicators)	30.00	89.00	52.873	13.598	.665	-.139
Supplementary Scales						
MAC-R (MacAndrew Alcoholism-Revised)	34.00	86.00	58.102	11.844	.094	-.440
ACK (Alcohol/Drug Problem Acknowledgment)	34.00	81.00	50.847	11.337	.717	-.235
PRO (Alcohol/Drug Problem Proneness)	30.00	84.00	54.134	11.874	.234	-.347
IMM (Immaturity Scale)	32.00	88.00	53.860	11.904	.082	-.712
Welsh's Anxiety Scale (A-scale)	30.00	73.00	48.898	11.337	.116	-.758
Welsh's Repression Scale (R-scale)	30.00	80.00	52.860	10.426	.335	-.282

Rorschach variables. Means, standard deviations, skewness, and kurtosis of the Rorschach variables are presented in Table 14. Many of the Rorschach variables also appeared to be normally distributed. However, there were some variables that were highly skewed and had a high kurtosis. The mean value for Lambda was 1.587 (*SD* = 2.297), with a range of .06 to 16.00. In fact almost half of the sample (49%) had Lambda values of one or greater. Because Lambda was not normally distributed in this sample, it was necessary to do a linear transformation in order to use the variable in the regression equations.

Determinants Vista and Texture as well as the special scores of a preservative response (PSV) and personalized response (PER) also exceeded a skew of 2.0 and a kurtosis of 7.0. Thus, for purposes of analysis, these four variables were dichotomized; a value of 0 indicated that the respective determinant or special score was not present in the protocol and a value of 1 reflected that there was at least one response coded for the particular variable. . Some additional variables that had a high skew and kurtosis, but did not need to be modified because they were not analyzed as separate variables included the special score of Aggressive Movement (AG), the Weighted Sum of Special Scores (Wsum6), the number of special scores assigned a level of two (Level2), and a human movement response without a form quality (Mnone).

There were no differences among the Rorschach variables based on gender, age, or race at $p<.01$.

Table 14

Descriptive Statistics for the Rorschach Inkblot Test

Variables	Min	Max	*M*	*SD*	Skew	Kurtosis
Response	14.0	36.0	18.172	4.179	1.629	3.701
Lambda	.06	16.00	1.587	2.297	4.239	20.195
SumShade	.00	16.00	2.752	2.796	2.019	5.819
Ea	.00	15.00	4.828	2.666	.610	.625
Es	.0	30.0	6.567	4.408	1.786	5.925
Adj Es	.0	22.0	5.363	3.193	1.447	4.889
D	-5.0	3.0	-.404	1.123	-1.115	3.239
AdjD	-5.0	3.0	-.127	.932	-.754	5.786
FM	0	8	2.39	1.767	.720	.417
SumC`	0	6	1.06	1.197	1.331	2.040
SumV	0	4	.36	.785	2.906	9.315
SumT	0	5	.38	.755	2.879	11.451
SumY	0	7	.96	1.332	1.847	3.848
FC	0	5	.85	.939	1.238	2.075
CF+C	.0	7.0	1.535	1.426	.903	.809
Pure C	0	3	.25	.539	2.357	5.877

Table 14

Continued

Variables	Min	Max	*M*	*SD*	Skew	Kurtosis
WsumC	.00	7.00	2.089	1.605	.647	.047
Afr	.20	1.00	.454	.1671	1.409	2.162
Space	0	9	2.68	2.048	.846	.323
Blends	0	15	2.83	2.619	1.832	4.882
CP	0	0	.00	.000	.	.
COP	0	4	.80	1.005	1.304	1.272
AG	0	6	.44	.872	2.947	12.045
GHR	0	9	2.76	1.725	.485	.421
PHR	.0	9.0	2.255	1.839	1.058	1.240
Active	.0	12.0	3.924	2.647	.821	.616
Passive	.0	10.0	2.739	1.988	.814	.470
Food	0	3	.27	.559	2.447	7.017
Human Content	.0	18.0	4.739	2.579	1.251	4.062
Pure H	0	10	1.96	1.578	1.065	3.014
PER	0	5	.45	.916	2.474	6.536
Isol. Index	.00	.80	.169	.1504	1.298	1.926
Ma	0	11	1.69	1.686	1.639	5.252
Mp	.0	5.0	1.102	1.081	1.028	.895
Intell. Index	.0	10.0	1.325	1.949	2.266	5.869

Table 14

Continued

Variables	Min	Max	*M*	*SD*	Skew	Kurtosis
Morbid	0	7	1.12	1.332	1.523	2.757
Sum6	0	11	1.55	1.704	1.662	5.254
Level2	0	8	.38	.895	4.735	33.871
Wsum6	.0	62.0	5.420	7.524	3.340	19.933
M-	0	6	.50	.852	2.498	10.364
Mnone	0	1	.01	.080	12.530	157.000
XA%	.50	1.00	.795	.098	-.109	.122
XDA%	.54	1.00	.821	.0976	-.156	-.178
X-%	.00	.50	.185	.099	.251	.355
S-	0	5	1.03	1.216	1.259	1.192
Popular	1	9	4.54	1.704	.042	-.307
X+%	.20	.93	.543	.139	.110	-.327
Xu%	.00	.53	.251	.117	.247	-.259
Zf	3.0	21.0	11.064	3.537	.078	-.277
W	2.0	16.0	8.490	3.234	.008	-.764
D	.00	25.00	7.204	4.419	1.315	2.568
Dd	.00	11.00	2.478	2.068	1.534	3.467
Move	.0	14.0	2.732	2.107	1.187	4.008

Table 14

Continued

Variables	Min	Max	*M*	*SD*	Skew	Kurtosis
Zd	-13.00	16.00	-.0637	4.625	.361	.384
PSV	0	6	.51	.859	2.609	10.688
DQ+	0	14	4.70	2.888	.731	.256
DQv	0	5	.72	.973	1.562	2.754
Ego Index	.00	.76	.325	.173	.159	-.585
Reflect	0	4	.38	.730	2.172	5.097
Food	0	4	.52	.773	1.570	2.592
Anatomy	0	4	.43	.709	2.012	5.054
Nonpure H	.00	11.00	2.777	1.923	1.044	2.088
PTI	0	4	.48	.874	1.878	2.817
DEPi	0	7	3.70	1.243	.161	.028
CDI	0	5	3.24	1.184	-.481	-.195
Suicide	1	10	4.85	1.847	.258	-.435

Correlation Analyses

A series of correlation analyses were conducted with MMPI-A scales and Rorschach variables organized according to the four constructs (*Self-System, Affective Regulation, Cognitive Progressing*, and *Interpersonal Relatedness*). The rational for only examining the relations among MMPI-A scales and Rorschach variables from each construct, rather than all of the variables together, was to reduce the number of

correlations. For each correlation matrix presented within the discussion of the corresponding construct, correlations are flagged based on their alpha level (i.e., $*p < .05$. $**p < .01$. $***p < .001$). However, a Bonferroni adjustment procedure was used based on the number of variables in the correlation matrices to reduce a Type I error. For all analysis, correlations were interpreted significant when $p<.003$.

Descriptive data correlates. None of the correlations for age, Full Scale IQ score, Verbal IQ score, Performance IQ score, standardized reading score, the number of maltreatment subtypes, and the severity of the four maltreatment subtypes were significant at $p<.01$. The number of maltreatment subtypes was significantly related to the severity of *Physical Abuse* ($r=.574$, $p<.001$), *Sexual Abuse* ($r=.494$, $p<.001$), *Neglect* ($r=.409$, $p<.001$), and *Emotional Maltreatment* ($r=.439$, $p<.001$), but the severity ratings of the four maltreatment subtypes were not related to each other.

Self-System correlates. The *T-scores* on Factor Five: Health Concerns, Content Scale-Adolescent-Low Self-Esteem (A-lse), Subscale Ma4 (Ego Inflation), and Subscale Si3 (Alienation-Self and Others) were all significantly related to each other at $p\leq.003$. There were no significant correlations among the Rorschach variables with $p<.003$. There were also no significant relations between the MMPI-A scales measuring the *Self-System* and Rorschach variables measuring the *Self-System* at $p<.003$. See Table 15 for a presentation of the correlations among MMPI-A scales and Rorschach variables measuring the *Self-System* as well as the number and severity of maltreatment subtypes.

Table 15

Correlation of MMPI-A Scales and Rorschach Variables Measuring the Self-System

Variables	1	2	3	4	5
1. MMPI-A: Factor Five	–				
2. MMPI-A: Adolescent-Low Self-Esteem	.574***	–			
3. MMPI-A: Ma4 (Ego Inflation)	.289***	.381***	–		
4. MMPI-A: Si3 (Alienation-Self and Others)	.512***	.691***	.584***	–	
5. Rorschach: Anatomy + X-ray	.092	-.004	.036	.011	–
6. Rorschach: Vista	.010	.034	.012	.084	.244
7. Rorschach: Form Dimension	.106	.151	.178*	.079	.110
8. Rorschach: Egocentricity Index	-.018	.045	.067	.012	-.066

*$p < .05$. **$p < .01$. ***$p < .001$.

Table 15

Continued

Variables	1	2	3	4	5
9. Rorschach: Special Score-Personalized Response	.030	-.002	.026	.015	.095
10. Rorschach: Special Score-Morbid Responses	.132	.077	-.040	-.002	.105
11. Number of Maltreatment Subtypes	.126	.053	.112	.112	.022
12. Severity of *Physical Abuse*	.242**	.030	.089	.242**	.004
13. Severity of *Sexual Abuse*	.021	.064	.142	.127	.129
14. Severity of *Neglect*	.015	-.083	-.103	-.073	-.134
15. Severity of *Emotional Maltreatment*	.095	.160*	.133	.084	-.113

*$p < .05$. **$p < .01$. ***$p < .001$.

Table 15

Continued

Variables	6	7	8	9	10
6. Rorschach: Vista	–				
7. Rorschach: Form Dimension	.341	–			
8. Rorschach: Egocentricity Index	.095	.105	–		
9. Rorschach: Special Score-Personalized Response	.229**	.059	-. 041	–	
10. Rorschach: Special Score-Morbid Responses	.100	.183*	.246**	.144	-
11. Number of Maltreatment Subtypes	.110	-.003	-.015	.216**	.283***
12. Severity of *Physical Abuse*	.116	-.009	-.200*	.214*	.191
13. Severity of *Sexual Abuse*	.010	.022	.115	.152	.167*
14. Severity of *Neglect*	-.189*	-.246**	-.019	-.053	-.022
15. Severity of *Emotional Maltreatment*	.066	.036	.074	.043	.122

*$p < .05$. **$p < .01$. ***$p < .001$.

Affective Regulation correlates. All of the MMPI-A scales were significantly, positively associated with each other. There were no significant relations between the Rorschach variables and the MMPI-A scales. The Depression Index (DEPi) on the Rorschach was positively related to Form-Color (FC) and Color-Form plus PureC (CF+C). Most of the correlations between the number and severity of maltreatment subtypes and the MMPI-A scales or Rorschach variables measuring *Affective Regulation* were not significant at $p \leq .003$. However, the severity of *Physical Abuse* was significantly related to subscale Sc5 (Lack of Ego Mastery-Defective Inhibition). Additionally, there was a significant association between the number of maltreatment subtypes and CF+C (See Table 16).

Table 16

Correlation of MMPI-A Scales and Rorschach Variables Measuring Affective Regulation

Variables	1	2	3	4	5	6
1. MMPI-A: Adolescent-Anxiety	–					
2. MMPI-A: Adolescent-Obsessiveness	.795***	–				
3. MMPI-A: Adolescent-Depression	.804***	.741***	–			
4. MMPI-A: Adolescent-Anger	.613***	.663***	.571***	–		
5. MMPI-A: Anxiety Scale	.890***	.892***	.850***	.690***	–	

*$p < .05$. **$p < .01$. ***$p < .001$.

Table 16

Continued

Variables	1	2	3	4	5	6
6. MMPI-A: D1 (Subjective Depression)	.831***	.689***	.850***	.493***	.778***	–
7. MMPI-A: D5 (Brooding)	.795***	.716***	.901***	.531***	.817***	.859***
8. MMPI-A: Pd5 (Self-Alienation)	.761***	.741***	.788***	.593***	.799***	.723***
9. MMPI-A: Sc5 (Lack of Ego Mastery-Defective Inhibition)	.673***	.737***	.618***	.614***	.743***	.572***
10. Rorschach: Depression Index	-.084	-.119	.007	-.125	-.075	-.064
11. Rorschach: Form-Color	-.116	-.109	-.100	-.022	-.076	-.084
12. Rorschach: Color Form Plus Pure C	-.110	-.090	.012	-.051	-.092	-.085
13. Number of Maltreatment Subtypes	.116	.139	.088	.104	.144	.108
14. Severity of *Physical Abuse*	.193*	.213*	.148	.191*	.204*	.160
15. Severity of *Sexual Abuse*	.148	.150	.094	.039	.104	.113
16. Severity of *Neglect*	-.082	-.091	-.94	.005	-.085	-.042
17. Severity of *Emotional Maltreatment*	.087	.068	.124	.049	.111	.091

*$p < .05$. **$p < .01$. ***$p < .001$.

Table 16

Continued

Variables	7	8	9	10	11	12
7. MMPI-A: D5 (Brooding)	–					
8. MMPI-A: Pd5 (Self-Alienation)	.729***	–				
9. MMPI-A: Sc5 (Lack of Ego Mastery-Defective Inhibition)	.577***	.555***	–			
10. Rorschach: Depression Index	-.057	-.039	-.096	–		
11. Rorschach: Form-Color	-.078	-.082	-.146	.286***	–	
12. Rorschach: Color Form Plus Pure C	-.046	-.055	-.077	.303***	.001	–
13. Number of Maltreatment Subtypes	.113	.128	.091	.124	.020	.256**
14. Severity of *Physical Abuse*	.156	.225**	.258**	.109	-.057	.061
15. Severity of *Sexual Abuse*	.148	.132	.071	.112	.124	.107
16. Severity of *Neglect*	-.073	-.077	-.066	-.103	-.087	.075
17. Severity of *Emotional Maltreatment*	.124	.074	-.008	-.012	-.050	.032

*$p < .05$. **$p < .01$. ***$p < .001$.

Cognitive Processes correlates. All of the MMPI-A scales were significantly positively correlated with each other. There were no significant relations between the MMPI-A scales and the Rorschach variables. The Rorschach Processing Efficiency (Zd) was negatively associated with the Special Score of a Preservative response (PSV) and Lambda was inversely related to Organizational Activity (Zf). The number of maltreatment subtypes and the severity of *Sexual Abuse* were significantly correlated with Organizational Activity (Zf; See Table 17).

Table 17

Correlations of MMPI-A Scales and Rorschach Variables Measuring Cognitive Processes

Variables	1	2	3	4	5
1.MMPI-A: Factor Eight	–				
2. MMPI-A: Adolescent-Low Aspiration	.368***	–			
3. MMPI-A: Adolescent-School Problems	.554***	.537***	–		
4. MMPI-A: D4 (Mental Dullness)	.602***	.547***	.560***	–	
5. MMPI-A: Sc3 (Lack of Ego-Mastery Cognitive)	.707***	.402***	.528***	.750***	–
6. MMPI-A: Infrequency Scale	.828***	.369***	.569***	.573***	.608***

*$p < .05$. **$p < .01$. ***$p < .001$.

Table 17

Continued

Variables	1	2	3	4	5
7.Rorschach: Perceptual Thinking Index	.096	-.038	-.025	.026	.112
8. Rorschach: Special Score-PSV	.041	.033	-.030	.070	-.011
9.Rorschach: Organizational Activity	.058	-.017	-.144	-.003	.058
10. Rorschach: Processing Efficiency	.031	-.019	-.057	-.070	-.080
11. Rorschach: Developmental Quality-vague	-.193*	-.044	.037	.007	-.136
12. Rorschach: Lambda	-.011	.033	.110	.032	-.002
13 Number of Maltreatment Subtypes	.095	.019	.031	.117	.121
14.Severity of *Physical Abuse*	.128	.058	.075	.170*	.191*
15.Severity of *Sexual Abuse*	.116	.122	-.121	.086	.104
16.Severity of *Neglect*	-.102	-.023	.112	-.047	-.111
17.Severity of *Emotional Maltreatment*	.055	.002	.007	.124	.128

*$p < .05$. **$p < .01$. ***$p < .001$.

Table 17

Continued

Variables	6	7	8	9	10	11	12
6. MMPI-A: Infrequency Scale	-						
7. Rorschach: Perceptual Thinking Index	.087	–					
8. Rorschach: Special Score-Preservative Response	.065	-.029	–				
9.Rorschach: Organizational Activity	-.024	.087	.223	–			
10. Rorschach: Processing Efficiency	.028	.164*	-.293**	.004	–		
11 Rorschach: Developmental Quality-vague	-.099	.065	-.022	.034	-.026	–	
12. Rorschach: Lambda	.105	-.100	.063	-.510***	-.181*	.137	–
13. Number of Maltreatment Subtypes	.036	.019	.173*	.256***	-.073	.011	-.193*
14. Severity of *Physical Abuse*	.060	-.090	.114	.043	-.075	-.024	.047
15. Severity of *Sexual Abuse*	.001	.193	.016	.250**	-.003	.071	-.208*
16. Severity of *Neglect*	.003	-.091	.131	-.085	-.195*	.111	.089
17. Severity of *Emotional Maltreatment*	.043	-.042	.029	.109	.025	.137	-.173*

*$p < .05$. **$p < .01$. ***$p < .001$.

Interpersonal Relatedness correlates. Factor Four: Social Discomfort was inversely related to Subscale Hy2 (Need for Affection), but positively related to Factor Seven: Familial Alienation, Subscale Pd4 (Social Alienation), and Subscale Si2 (Social Avoidance). Factor Seven: Familial Alienation, Subscale Si2 (Social Avoidance), and Subscale Pd4 (Social Alienation) were also negatively related to Subscale Hy2 (Need for Affection). Subscale Si2 (Social Avoidance) was not significantly related to Subscale Factor Seven: Familial Alienation and Subscale Pd4 (Social Alienation). There were no significant correlations with $p < .003$ between any of the MMPI-A scales and Rorschach variables measuring *Affective Regulation,* among the Rorschach variables, or with either the MMPI-A scales and Rorschach variables and the number and severity of maltreatment subtypes. Please see Table 18 for a presentation of the correlation matrix.

Table 18

Correlation of MMPI-A Scales and Rorschach Variables Measuring Interpersonal Relatedness

Variables	1	2	3	4	5
1. MMPI-A: Factor Four	–				
2MMPI-A: Factor Seven	.251***	–			
3. MMPI-A: Hy2 (Need for Affection)	-.526***	-.308***	–		
4. MMPI-A: Pd4 (Social Alienation)	.511***	.611***	-.502***	–	
5.MMPI-A: Si2 (Social Avoidance)	.525***	.063	-.200***	.126	–
6. Rorschach: Coping Deficit Index	.049	-.041	.034	-.032	.065

*$p < .05$. **$p < .01$. ***$p < .001$.

Table 18

Continued

Variables	1	2	3	4	5
7. Rorschach: Hypervigilance Index	-.121	-.008	.155	-.052	-.177*
8. Rorschach: Special Score-Good Human Response	.070	-.085	-.109	.120	.052
9.Rorschach: Special Score-Poor Human Response	.152	.125	-.041	.150	.126
10.Number of Maltreatment Subtypes	.109	.129	-.045	.148	-.031
11.Severity of *Physical Abuse*	.132	.230**	-.003	.191	.072
12.Severity of *Sexual Abuse*	.200*	-.074	-.148	.090	.100
13. Severity of *Neglect*	-.047	.042	.054	-.059	.011
14. Severity of *Emotional Maltreatment*	.093	.143	-.061	.071	-.166*

*$p < .05$. **$p < .01$. ***$p < .001$.

Table 18

Continued

Variables	6	7	8	9
6. Rorschach: Coping Deficit Index	–			
7. Rorschach: Hypervigilance Index	.023	–		
8. Rorschach: Special Score-Good Human Response	-.544	-.192	–	
9. Rorschach: Special Score-Poor Human Response	-.183*	-.190*	.082	–
10. Number of Maltreatment Subtypes	-.057	.054	.079	.163*
11. Severity of *Physical Abuse*	.085	-.056	-.067	.007
12. Severity of *Sexual Abuse*	-.051	-.024	.179*	.246**
13. Severity of *Neglect*	-.103	.196	.053	-.069
14. Severity of *Emotional Maltreatment*	-.082	-.009	.148	.141

$^{*}p < .05$. $^{**}p < .01$. $^{***}p < .001$.

Multiple Regression Analyses

For each of the four construct areas (e.g., the *Self-System*, *Affective Regulation*, *Cognitive Processes*, and *Interpersonal Relatedness*), there were four preliminary research questions and corresponding hypotheses aimed at determining if the MMPI-A scales and Rorschach variables predicted the number and severity of the maltreatment subtypes. Thus, there were actually five analyses conducted for each set of MMPI-A scales or Rorschach variables: MMPI-A scales predicting the number of maltreatment subtypes; the MMPI-A scales predicting the severity of four different maltreatment subtypes (e.g., *Physical Abuse*, *Sexual Abuse*, *Neglect*, and *Emotional Maltreatment*); the

Rorschach variables predicting the number of maltreatment subtypes; and the Rorschach variables predicting the severity of four different maltreatment subtypes (e.g., *Physical Abuse*, *Sexual Abuse*, *Neglect*, and *Emotional Maltreatment*).

In order to determine if either instrument predicted the number and/or severity of maltreatment subtypes, a series of Multiple Regression (MR) analyses were performed. MR was appropriate to answer the main research questions because it can be used to explain the variation in an interval dependent variable, based on linear combinations of interval, dichotomous, or dummy independent variables (Kleinbaum, Kupper, Muller, & Nizam, 1998; Menard, 1995). Tolerance values that were less than or equal to .20 were considered to be suggestive of collinearity between the set of independent variables, which is a violation of an assumption for MR.

In order to determine whether the model was significant, a Bonferroni adjustment procedure was used. Since there were five primary analyses run for each set of scales and variables (i.e., the number of maltreatment subtypes and the severity of the four maltreatment subtypes), the cutoff for interpretation was set to $p \leq .01$. If the regression model was not significant, there was no further examination of individual variables. If the set of independent variables significantly predicted the dependent variable, the relations between individual variables in the block and the criterion variable were then examined. Due to the exploratory nature of the study, as well as the fact that the regression equation controls for the other variables in the block, individual variables were considered to added their own unique variation when $p \leq .05$.

All regression analyses are presented in table format. Multiple regression tables include the Beta, standardized Beta, R-squared, and F values of the full model. Hierarchical regression tables also note the change in R-squared.

The *Self-System (as measured by the MMPI-A) and maltreatment*. There were two research questions addressing the utility of the MMPI-A scales measuring the *Self-System* in predicting the number and severity of maltreatment subtypes. There was no evidence of multicollinearity among these scales.

1. *Research Question*: Do MMPI-A scales measuring the *Self-System* predict the number of maltreatment subtypes?

A. *Hypothesis*: Greater impairment in the *Self-System* will be predictive of a greater number of maltreatment subtypes. Accordingly, as a set, higher *T-scores* on the MMPI-A scales measuring the *Self-System* will be evidence of multiple forms of maltreatment.

1. Contrary to predictions, the MMPI-A scales entered for the *Self-System* did not predict the number of maltreatment subtypes ($F_{4,152} = 1.032$, $p = .393$; see Table 19).

a) *Subhypothesis* (exploratory): Individuals with higher scores on Content Scale Adolescent-Low Self-Esteem (A-lse) will have experienced more forms of maltreatment.

Table 19

Summary of Multiple Regression Analyses Examining the Relations between MMPI-A Scales Measuring the Self-System and the Number of Maltreatment Subtypes (N = 157)

MMPI-A Scales	*B*	*SE B*	*ß*
Factor Five: Health Concerns	.010	.008	.122
Adolescent-Low Self-Esteem (A-lse)	-.006	.008	-.095
Ma4 (Ego Inflation)	.005	.007	.069
Si3 (Alienation of Self and Others)	.006	.010	.075

Note: R^2 = .026, F (4, 152) = 1.032, p = .393.

*$p \leq .05$. **$p \leq .01$. ***$p \leq .001$. +$p \leq .10$.

2. *Research Question*: Do MMPI-A scales measuring the *Self-System* predict the severity of the four maltreatment subtypes?

A. The MMPI-A scales entered for the *Self-System*, taken together, will significantly predict the severity of *Physical Abuse* experienced.

1. The MMPI-A scales entered for the *Self-System*, taken together, significantly predicted the severity of *Physical Abuse* experienced ($F_{4,133}$ = 5.489, p< .001; see Table 20).

a) There were no specific hypotheses put forth for individual scales. Nonetheless, when controlling for the other scales, certain scores entered did contribute to the understanding of *Physical Abuse*. The higher the average *T-score* on Factor 5: Health Concerns, the greater the severity of *Physical Abuse* experienced (t = 2.586, p = .011).

b) An individual scale that contributed the most to the prediction of the severity of *Physical Abuse* was Adolescent-Low Self-Esteem (A-lse; t = -3.115, p = .002).

c) Harris-Lingoes Clinical Subscale Si3 (Alienation of Self and Others; $t = 2.995$, $p = .003$) also significantly predicted the severity of *Physical Abuse*.

Table 20

Summary of Multiple Regression Analyses Examining the Relations between MMPI-A Scales Measuring the Self-System and the Severity of Physical Abuse (N = 136)

MMPI-A Scales	*B*	*SE B*	*ß*
Factor Five: Health Concerns*	.034	.013	.269
Adolescent-Low Self-Esteem (A-lse)**	-.037	.012	-.370
Ma4 (Ego Inflation)	-.007	.011	-.066
Si3 (Alienation of Self and Others)**	.044	.015	.385

Note: $R^2 = .142$, F (4, 133) = 5.489, $p < .001$.
*$p \leq .05$. **$p \leq .01$. ***$p \leq .001$. +$p \leq .10$.

B. *Hypothesis*: As a set, the MMPI-A scales measuring the *Self-System* will significantly predict the severity of *Sexual Abuse* experienced.

1. The MMPI-A scales entered for the *Self-System* did not predict the severity of *Sexual Abuse* ($F_{4,138} = .905$, $p = .463$; see Table 21).

a) *Subhypothesis* (exploratory): Lower self-esteem will be related to more severe abuse. Therefore, higher scores on A-lse will be related to higher severity ratings for *Sexual Abuse*.

Table 21

Summary of Multiple Regression Analyses Examining the Relations between MMPI-A Scales Measuring the Self-System and the Severity of Sexual Abuse (N = 143)

MMPI-A Scales	*B*	*SE B*	*ß*
Factor Five: Health Concerns	-.009	.019	-.049
Adolescent-Low Self-Esteem (A-lse)	-.002	.017	- .016
Ma4 (Ego Inflation)	.016	.016	.103
Si3 (Alienation of Self and Others)	.016	.021	.102

Note: R^2 = .26, F (4, 138) = .905, p = .463.

*$p \leq .05$. **$p \leq .01$. ***$p \leq .001$. +$p \leq .10$.

C. *Hypothesis*: As a set, the MMPI-A scales measuring the *Self-System* will significantly predict the severity of *Neglect* experienced.

1. The MMPI-A scales entered for the *Self-System* did not predict the severity of *Neglect* ($F_{4,144}$ = .740, p = .566; see Table 22).

Table 22

Summary of Multiple Regression Analyses Examining the Relations between MMPI-A Scales Measuring the Self-System and the Severity of Neglect (N = 149)

MMPI-A Scales	*B*	*SE B*	*ß*
Factor Five: Health Concerns	.020	.020	.106
Adolescent-Low Self-Esteem (A-lse)	- .016	.018	-.112
Ma4 (Ego Inflation)	- .016	.017	-.096
Si3 (Alienation of Self and Others)	.001	.023	.008

Note: R^2 = .020, F (4, 144) = .740, p = .566.

*$p \leq .05$. **$p \leq .01$. ***$p \leq .001$. +$p \leq .10$.

D. *Hypothesis*: As a set, the MMPI-A scales measuring the *Self-System* will significantly predict the severity of *Emotional Maltreatment* experienced.

1. The MMPI-A scales entered for the *Self-System* did not predict the severity of *Emotional Maltreatment* ($F_{4,152}$ = 1.267, p = .285; see Table 23).

Table 23

Summary of Multiple Regression Analyses Examining the Relations between MMPI-A Scales Measuring the Self-System and the Severity of Emotional Maltreatment (N = 157)

MMPI-A Scales	*B*	*SE B*	*ß*
Factor Five: Health Concerns	.002	.019	.008
Adolescent-Low Self-Esteem (A-lse)+	.030	.018	.197
Ma4 (Ego Inflation)	.021	.017	.121
Si3 (Alienation of Self and Others)	-.028	.022	-.161

Note: R^2 = .032, F (4, 152) = 1.267, p = .285

*$p \leq .05$. **$p \leq .01$. ***$p \leq .001$. +$p \leq .10$.

The *Self-System (as measured by the Rorschach) and maltreatment*. There were two research questions addressing the utility of the Rorschach variables measuring the *Self-System* in predicting the number and severity of maltreatment subtypes. There was no evidence of multicollinearity among these scales.

3. *Research Question*: Do Rorschach variables measuring the *Self-System* predict the number of maltreatment subtypes?

A. *Hypothesis*: As a set, the Rorschach variables measuring the *Self-System* will predict, at a statistically significant level, the number of maltreatment subtypes.

1. The Rorschach variables entered for the *Self-System* predicted the number of maltreatment subtypes ($F_{6,150}$ = 3.44, p = .003; see Table 24).

a) *Subhypothesis* (exploratory): Bodily concerns will be associated with multiple forms of maltreatment. Therefore, there will be more content codes of Anatomy or X-ray among individuals with more maltreatment experiences.

1. The hypothesis that there will be more content codes of Anatomy or X-ray among individuals with more maltreatment experiences was not supported (t = -.352, p = .735).

b) *Subhypothesis* (exploratory): A damaged self-image will be associated with multiple forms of maltreatment. Accordingly, a greater occurrence of Morbid responses will reflect more maltreatment experiences.

1. When the other variables were controlled, special score MOR (t = 3.35, p = .001) still predicted the number of maltreatment types experienced by the adolescents at a statistically significant level. Accordingly, consistent with the hypothesis, as the number of MOR increased, so did the number of maltreatment types; that is, the more MOR present in a protocol, the more types of maltreatment experienced.

c) An additional finding was that special score PER predicted the number of maltreatment subtypes when other variables were controlled. The presence of at least one personalized response (t = 2.151, p = .033) in the protocol was related to more maltreatment subtypes.

Table 24

Summary of Multiple Regression Analyses Examining the Relations between Rorschach Variables Measuring the Self-System and the Number of Maltreatment Subtypes (N = 157)

Rorschach Variables	*B*	*SE B*	*ß*
Anatomy+*X*-ray	-.033	.093	-.028
Special Score: Morbid***	.185	.054	.276
Vista	.108	.162	.057
Form Dimension	-.103	.093	-.092
Egocentricity Index	-.107	.385	-.022
Special Score: Personal*	.317	.147	.171

Note: R^2 = .121, F (6, 150) = .3.44, p = .003.

*$p \leq .05$. **$p \leq .01$. ***$p \leq .001$. +$p \leq .10$.

4. *Research Question*: Do Rorschach variables measuring the *Self-System* predict the severity of the four maltreatment subtypes?

A. *Hypothesis*: As a set, the Rorschach variables measuring the *Self-System* will significantly predict the severity of *Physical Abuse* experienced.

1. As hypothesized, the Rorschach variables entered for the *Self-System* were found to be jointly related to the severity of *Physical Abuse* experienced ($F_{6,131}$ = 3.087, p = .007; see Table 25).

a) *Subhypothesis* (exploratory): The number of Morbid responses will be significantly related to the severity of *Physical Abuse*.

1. As predicted, the number of Morbid responses (MOR) was independently related to the severity of *Physical Abuse* (t = 2.26, p = .025). Specifically, more morbid responses were related to more severe *Physical Abuse*.

b) The sum of Anatomy and X-ray will correspond to the severity of *Physical Abuse* experienced.

1. This hypothesis was not supported.

c) An additional finding was that after controlling for the other variables, the Egocentricity Index also predicted the severity of *Physical Abuse*. Lower Egocentricity Index values ($t = 2.52$, $p = .013$) were related to more severe *Physical Abuse*.

Table 25

Summary of Multiple Regression Analyses Examining the Relations between Rorschach Variables Measuring the Self-System and the Severity of Physical Abuse (N = 136)

Rorschach Variables	*B*	*SE B*	ß
Anatomy+*X*-ray	-.091	.157	-.049
Special Score: Morbid*	.191	.085	.195
Vista	.224	.259	.078
Form Dimension	-.093	.147	- .057
Egocentricity Index*	-1.571	.623	-.210
Special Score: Personal+	.463	.240	.164

Note: $R^2 = .124$, F (6, 131) = 3.087, $p = .007$.

*$p \leq .05$. **$p \leq .01$. ***$p \leq .001$ +$p < .10$.

B. *Hypothesis*: As a set, the Rorschach variables measuring the *Self-System* will significantly predict the severity of *Sexual Abuse* experienced.

1. The *Self-System* variables did not predict severity of *Sexual Abuse* ($F_{6,136}$ = 1.799, p = .104; see Table 26).

a) *Subhypothesis* (exploratory): An+Xy will be significantly, positively related to the severity of *Sexual Abuse*.

b) *Subhypothesis* (exploratory): The number of Morbid responses will be significantly related to the severity of *Sexual Abuse*.

Table 26

Summary of Multiple Regression Analyses Examining the Relations between Rorschach Variables Measuring the Self-System and the Severity of Sexual Abuse (N = 143)

Rorschach Variables	*B*	*SE B*	*ß*
Anatomy+*X*-ray	.269	.202	.115
Special Score: Morbid+	.224	.129	.153
Vista	-.256	.355	-.066
Form Dimension	-.093	.206	-.041
Egocentricity Index	1.161	.870	.112
Special Score: Personal+	.558	.327	.144

Note: R^2 = .074, F (6, 136) = 1.799, p = .104.

*$p \leq .05$. **$p \leq .01$. ***$p \leq .001$. +$p \leq .10$.

C. *Hypothesis*: As a set, the Rorschach variables measuring the *Self-System* will significantly predict the severity of *Neglect* experienced.

1. The *Self-System* variables did not predict severity of *Neglect* ($F_{6,142}$ = 2.192, p = .047; see Table 27).

Table 27

Summary of Multiple Regression Analyses Examining the Relations between Rorschach Variables Measuring the Self-System and the Severity of Neglect (N = 149)

Rorschach Variables	*B*	*SE B*	*ß*
Anatomy+*X*-ray	-.257	.237	-.091
Special Score: Morbid	.103	.130	.067
Vista	-.448	.384	-.104
Form Dimension*	-.549	.220	-.220
Egocentricity Index	.035	.902	.003
Special Score: Personal	-.042	.344	- .010

Note: R^2 = .085, F (6, 142) = 2.192, p = .047.

*$p \leq .05$. **$p \leq .01$. ***$p \leq .001$. +$p \leq .10$.

D. *Hypothesis*: As a set, the Rorschach variables measuring the *Self-System* will significantly predict the severity of *Emotional Maltreatment* experienced.

1. The *Self-System* variables did not predict severity of *Emotional Maltreatment* ($F_{6,150}$ = 1.037, p = .404; see Table 28).

Table 28

Summary of Multiple Regression Analyses Examining the Relations between Rorschach Variables Measuring the Self-System and the Severity of Emotional Maltreatment (N = 157)

Rorschach Variables	*B*	*SE B*	*ß*
Anatomy+*X*-ray	-.337	.221	-.127
Special Score: Morbid	.192	.128	.126
Vista	.334	.385	.077
Form Dimension	-.023	.221	-.009
Egocentricity Index	.632	.916	.056
Special Score: Personal	.120	.350	.029

Note: R^2 = .040, F (6, 150) = 1.037, p = .404.

*$p \leq .05$. **$p \leq .01$. ***$p \leq .001$. +$p \leq .10$.

Incremental validity. Since both the MMPI-A and Rorschach *Self-System* scales and variables were independently predicted the severity of *Physical Abuse* experienced, two sets of hierarchical regression analyses were conducted to determine their joint contribution to the prediction of the number and/or severity of maltreatment subtypes. Since the way that the variables are entered can affect the model obtained, two sets of analyses will be conducted: 1) the MMPI-A scales were first entered into the equation, followed by the Rorschach; and 2) the Rorschach were entered first into the equation, followed by the MMPI-A scales. In a hierarchical regression, it is possible to see how the variance in the dependent variable (e.g., number of maltreatment subtypes, maltreatment severity, etc.) can be explained by a set of new independent variables, over and above

that explained by an earlier set. The change in *R*-squared (R^2) was examined to determine the magnitude of that increase.

5. Do the Rorschach variables measuring the *Self-System* evidence incremental validity (above and beyond the MMPI-A scales) in their prediction of the severity of *Physical Abuse*?

A. Findings of hierarchical analyses indicated that when the MMPI-A scales or the Rorschach variables were added into a second block more variance was explained than either instrument alone. Accordingly, when the MMPI-A scales were entered into the first block, followed by the Rorschach variables, the change in R^2 was .131 (see table 29).

Table 29

Summary of Hierarchical Regression Analyses For MMPI-A Scales and Rorschach Variables Measuring the Self-System Predicting the Severity of Physical Abuse (N = 138)

	B	*SE B*	*ß*
Step 1: MMPI-A Scales			
Factor Five: Health Concerns*	.030	.013	.238
A-Low Self-Esteem**	-.037	.011	-.372
Ma4 (Ego Inflation)	- .001	.011	-.005
Si3 (Alienation)**	.042	.014	.368
Step 2: Rorschach Variables			
Anatomy+*X*-ray	-.130	.148	-.070
Special Score: Morbid*	.192	.080	.196
Vista	.175	.245	.061
Form Dimension	-.066	.142	-.041
Egocentricity Index*	-1.526	.588	-.204
Special Score: Personal *	.453	.225	.161

Note: R^2= .142 for Step 1; ΔR^2= .114 (*ps* = .005).

*$p \leq .05$. **$p \leq .01$. ***$p \leq .001$. +$p \leq .10$.

6. Do the MMPI-A scales measuring the *Self-System* evidence incremental validity (above and beyond the Rorschach variables) in their prediction of the severity of *Physical Abuse*?

A. When the Rorschach variables were entered first, followed by the MMPI-A scales, R^2 change was .114. Thus, personality characteristics related to the *Self-System* as measured by these instruments accounted for over 25% of the variance in explaining the severity of *Physical Abuse* endured. Moreover, as shown in Tables 59 and 60, all of the individual scales and variables that had been identified as statistically significant

individual predictors were still significantly related to the severity of *Physical Abuse*. Additionally, special score Personalized Response was independently related to the severity of *Physical Abuse*, whereas when the Rorschach was entered alone, there was only a trend for this variable to independently contribute to the model (see Table 30).

Table 30

Summary of Hierarchical Regression Analyses For Rorschach Variables and MMPI-A Scales Measuring the Self-System Predicting the Severity of Physical Abuse (N = 138)

	B	*SE B*	*ß*
Step 1: Rorschach Variables			
Anatomy+*X*-ray	-.130	.148	-.070
Special Score: Morbid*	.192	.080	.196
Vista	.175	.245	.061
Form Dimension	-.066	.142	-.041
Egocentricity Index*	-1.526	.588	-.204
Special Score: Personal *	.453	.225	.161
Step 2: MMPI-A Scales			
Factor Five: Health Concerns*	.030	.013	.238
A-Low Self-Esteem**	-.037	.011	-.372
Ma4 (Ego Inflation)	- .001	.011	-.005
Si3 (Alienation)**	.042	.014	.368

Note: R^2= .124 for Step 1; ΔR^2= .131 (*ps* < .001).

*$p \leq .05$. **$p \leq .01$. ***$p \leq .001$. +$p \leq .10$.

Affective Regulation (as measured by the MMPI-A) and maltreatment. There were two research questions addressing the utility of the MMPI-A scales measuring *Affective Regulation* in predicting the number and severity of maltreatment subtypes. Tolerance values were lower than .2 for many of the scales, suggesting that there was multicollinearity among the MMPI-A scales measuring *Affective Regulation*. The scales were subjected to a data reduction through a principal components analysis with an oblique rotation. With an Eigen value of 1, one factor emerged, accounting for 75.736% of the variance. These findings suggest that the scales represent a unified construct. Caution needs to be exercised in interpreting the findings below as collinearity violations can result in instability of regression coefficient estimates.

1**. *Research Question*: Do MMPI-A scales measuring *Affective Regulation* predict the number of maltreatment subtypes?**

A. *Hypothesis*: Affective dysregulation will be related to multiple forms of maltreatment experiences.

1. The MMPI-A scales entered for *Affective Regulation* did not predict the number of maltreatment subtypes ($F_{8,148}$ = .581, p = .811; see Table 31).

a) *Subhypothesis* (exploratory): Adolescents who present with poorer emotional control and impulsivity as evidenced by higher elevations on Clinical Subscale Sc5 (Lack of Ego Mastery-Defective Inhibition) will have experienced more maltreatment subtypes.

b) *Subhypothesis* (exploratory): Reports of emotional discomfort, unhappiness, and guilt will be characteristic of multiple forms of maltreatment. Accordingly, higher scores on Clinical Subscale Pd5 (Self-Alienation) will be related to more maltreatment experiences.

Table 31

Summary of Multiple Regression Analyses Examining the Relations between MMPI-A Scales Measuring Affective Regulation and the Number of Maltreatment Subtypes (N = 157)

MMPI-A Scales	*B*	*SE B*	ß
Adolescent-Anxiety	.013	.014	.196
Adolescent-Obsessiveness	.012	.015	.156
Adolescent-Depression	- .012	.016	-.167
Adolescent-Anger	.002	.008	.028
Anxiety Scale	- .016	.022	-.212
D1 (Subjective Depression)	-.003	.014	-.036
D5 (Brooding)	.010	.015	.132
Pd5 (Self-Alienation)	.006	.011	.087
Sc5 (Lack of Ego Mastery, Defective Inhibition)	- .001	.009	-.016

Note: R^2 = .034, F (8, 148) = .581, p = .811.

*$p \leq .05$. **$p \leq .01$. ***$p \leq .001$. +$p \leq .10$.

2. ***Research Question*: Do MMPI-A scales measuring *Affective Regulation* predict the severity of the four maltreatment subtypes?**

A. *Hypothesis*: As a set, the MMPI-A scales measuring *Affective Regulation* will significantly predict the severity of *Physical Abuse* experienced.

1. The MMPI-A scales entered for *Affective Regulation* did not predict the severity of *Physical Abuse* ($F_{8,129}$ = 1.516, p = .149; see Table 32).

a) *Subhypothesis* (exploratory): Elevations on Clinical Subscale Pd5 (Self-Alienation) will be related to greater severity of *Physical Abuse*.

b) *Subhypothesis* (exploratory): Elevations on Clinical Subscale Sc5

(Lack of Ego Mastery-Defective Inhibition) will be related to greater severity of *Physical Abuse*.

Table 32

Summary of Multiple Regression Analyses Examining the Relations between MMPI-A Scales Measuring Affective Regulation and the Severity of Physical Abuse (N = 136)

MMPI-A Scales	*B*	*SE B*	*ß*
Adolescent-Anxiety	.011	.022	.116
Adolescent-Obsessiveness	.001	.023	.011
Adolescent-Depression	-.023	.025	-.213
Adolescent-Anger	.004	.013	.040
Anxiety Scale	-.029	.033	-.256
D1 (Subjective Depression)	- .001	.021	-.006
D5 (Brooding)	.010	.024	.086
Pd5 (Self-Alienation)+	.028	.017	.258
Sc5 (Lack of Ego Mastery, Defective Inhibition)*	.030	.015	.283

Note: R^2 = .096, F (8, 129) = 1.516, p = .149.

*$p \leq .05$. **$p \leq .01$. ***$p \leq .001$ +$p \leq .10$.

B. *Hypothesis*: As a set, the MMPI-A scales measuring *Affective Regulation* will significantly predict the severity of *Sexual Abuse* experienced.

1. The MMPI-A scales entered for *Affective Regulation* did not predict the severity of *Sexual Abuse* ($F_{8,134}$ = .929, p = .502; see Table 33).

a) *Subhypothesis* (exploratory): Elevations on Clinical Subscale Pd5 (Self-Alienation) will be related to greater severity of *Sexual Abuse*.

b) *Subhypothesis* (exploratory): Elevations on Clinical Subscale Sc5 (Lack of Ego Mastery-Defective Inhibition) will be related to greater

severity of *Sexual Abuse*.

c) *Subhypothesis* (exploratory): Higher scores on Content Scale Adolescent-depression (A-dep) will be reflective of more severe *Sexual Abuse*.

Table 33

Summary of Multiple Regression Analyses Examining the Relations between MMPI-A Scales Measuring Affective Regulation and the Severity of Sexual Abuse (N = 143)

MMPI-A Scales	*B*	*SE B*	*?*
Adolescent-Anxiety	-.027	.029	-.196
Adolescent-Obsessiveness	.016	.034	.06
Adolescent-Depression	- .055	.034	-.378
Adolescent-Anger	- .016	.017	-.112
Anxiety Scale	.053	.047	.327
D1 (Subjective Depression)	.005	.031	.034
D5 (Brooding)	.044	.033	.290
Pd5 (Self-Alienation)	.016	.024	.101
Sc5 (Lack of Ego Mastery, Defective Inhibition)	-.007	.020	- .050

Note: R^2 = .059, F (8, 134) = .929, p = .502.

*$p \leq .05$. **$p \leq .01$. ***$p \leq .001$. +$p \leq .10$.

C. *Hypothesis*: As a set, the MMPI-A scales measuring *Affective Regulation* will significantly predict the severity of *Neglect* experienced.

1. The MMPI-A scales entered for *Affective Regulation* did not predict the severity of *Neglect* ($F_{8,140}$ = .478, p = .887; see Table 34).

Table 34

Summary of Multiple Regression Analyses Examining the Relations between MMPI-A Scales Measuring Affective Regulation and the Severity of Neglect (N = 149)

MMPI-A Scales	*B*	*SE B*	ß
Adolescent-Anxiety	-.023	.032	-.155
Adolescent-Obsessiveness	-.020	.034	-.112
Adolescent-Depression	-.034	.037	-.220
Adolescent-Anger	.022	.018	.144
Anxiety Scale	.015	.049	.089
D1 (Subjective Depression)	.038	.033	.232
D5 (Brooding)	.001	.025	.008
Pd5 (Self-Alienation)	-.003	.022	- .018
Sc5 (Lack of Ego Mastery, Defective Inhibition)	-.004	.035	-.022

Note: R^2 = .030, F (8, 140) = .478, p = .887.

*$p \leq .05$. **$p \leq .01$. ***$p \leq .001$. +$p \leq .10$.

D. *Hypothesis*: As a set, the MMPI-A scales measuring *Affective Regulation* will significantly predict the severity of *Emotional Maltreatment* experienced.

1. The MMPI-A scales entered for *Affective Regulation* did not predict the severity of *Emotional Maltreatment* ($F_{8,148}$ = .647, p = .755; see Table 35).

Table 35

Summary of Multiple Regression Analyses Examining the Relations between MMPI-A Scales Measuring Affective Regulation and the Severity of Emotional Maltreatment (N = 157)

MMPI-A Scales	*B*	*SE B*	ß
Adolescent-Anxiety	.032	.031	.211
Adolescent-Obsessiveness	.007	.033	.043
Adolescent-Depression	.032	.036	.199
Adolescent-Anger	- .015	.018	.016
Anxiety Scale	.002	.049	-.087
D1 (Subjective Depression)	-.024	.032	-.144
D5 (Brooding)	.016	.035	.093
Pd5 (Self-Alienation)	- .014	.025	-.082
Sc5 (Lack of Ego Mastery, Defective Inhibition)	-.029	.021	-.175

Note: R^2 = .038, F (8, 148) = .647, p = .755.

*$p \leq .05$. **$p \leq .01$. ***$p \leq .001$. +$p \leq .10$.

Affective Regulation (as measured by the Rorschach) and maltreatment. There were two research questions addressing the utility of the Rorschach variables measuring *Affective Regulation* in predicting the number and severity of maltreatment subtypes. There was no evidence of multicollinearity among these variables.

3. *Research Question*: Do Rorschach variables measuring *Affective Regulation* predict the number of maltreatment subtypes?

A. As a set, the Rorschach variables measuring the *Affective Regulation* will significantly predict the number of maltreatment subtypes.

1. The Rorschach variables entered for *Affective Regulation* did not predict

the number of maltreatment subtypes ($F_{3,153}$ = 3 .053, p = .030; see Table 36).

Table 36

Summary of Multiple Regression Analyses Examining the Relations between Rorschach Variables Measuring Affective Regulation and the Number of Maltreatment Subtypes (N = 157)

Rorschach Variables	*B*	*SE B*	*ß*
Depression Index	.041	.060	.058
Form-Color	.003	.076	.003
Color-Form Plus Pure C*	.131	.051	.213

Note: R^2 = .056, F (3, 153) = 3 .053**,** p = .030.

*$p \leq$ .05. **$p \leq$ .01. ***$p \leq$ .001. +$p \leq$ .10.

4. *Research Question*: Do Rorschach variables measuring *Affective Regulation* predict the severity of the four maltreatment subtypes?

A. *Hypothesis*: As a set, the Rorschach variables measuring *Affective Regulation* will significantly predict the severity of *Physical Abuse* experienced.

1. The Rorschach variables entered for *Affective Regulation* did not predict the severity of *Physical Abuse* ($F_{3,134}$ = .955, p = .416; see Table 37).

Table 37

Summary of Multiple Regression Analyses Examining the Relations between Rorschach Variables Measuring the Affective Regulation and the Severity of Physical Abuse (N = 136)

Rorschach Variables	*B*	*SE B*	*ß*
Depression Index	.134	.098	.130
Form-Color	-.130	.123	-.095
Color-Form Plus Pure C	.020	.086	.021

Note: R^2 = .021, F (3, 134) = .955, p = .416.

*$p \leq .05$. **$p \leq .01$. ***$p \leq .001$. +$p \leq .10$.

B. *Hypothesis*: As a set, the Rorschach variables measuring *Affective Regulation* will significantly predict the severity of *Sexual Abuse* experienced.

1. The Rorschach variables entered for *Affective Regulation* did not predict the severity of *Sexual Abuse* ($F_{3,139}$ = 1.332, p = .267; see Table 38).

a) *Subhypothesis* (exploratory): The number of criteria met on the DEPi is associated with the severity of sexual abuse experienced.

b) *Subhypothesis* (exploratory): There will be less FC determinants and a higher sum of CF+C determinants as the severity of *Sexual Abuse* increases.

Table 38

Summary of Multiple Regression Analyses Examining the Relations between Rorschach Variables Measuring the Affective Regulation and the Severity of Sexual Abuse (N = 143)

Rorschach Variables	*B*	*SE B*	*ß*
Depression Index	.080	.135	.055
Form-Color	.188	.167	.101
Color-Form Plus Pure C	.113	.112	.088

Note: R^2 = .028, F (3, 139) = 1.332, p = .267.
*$p \leq .05$. **$p \leq .01$. ***$p \leq .001$. +$p \leq .10$.

C. *Hypothesis*: As a set, the Rorschach variables measuring *Affective Regulation* will significantly predict the severity of *Neglect* experienced.

1. The Rorschach variables entered for *Affective Regulation* did not predict the severity of *Neglect* ($F_{3,145} = 1.222$, $p = .304$; see Table 39).

a) *Subhypothesis* (exploratory): There will be less FC determinants and a higher sum of CF+C determinants based on the severity of *Neglect*.

Table 39

Summary of Multiple Regression Analyses Examining the Relations between Rorschach Variables Measuring the Affective Regulation and the Severity of Neglect (N = 149)

Rorschach Variables	*B*	*SE B*	ß
Depression Index	-.184	.141	-.118
Form-Color	-.107	.178	- .052
Color-Form Plus Pure C	.150	.119	.109

Note: $R^2 = .025$, F (3, 145) = 1.222, $p = .304$.

*$p \leq .05$. **$p \leq .01$. ***$p \leq .001$. +$p \leq .10$.

D. *Hypothesis*: As a set, the Rorschach variables measuring *Affective Regulation* will significantly predict the severity of *Emotional Maltreatment* experienced.

1. The Rorschach variables entered for *Affective Regulation* did not predict the severity of *Emotional Maltreatment* ($F_{3,153} = .06$, $p = .981$; see Table 40).

Table 40

Summary of Multiple Regression Analyses Examining the Relations between Rorschach Variables Measuring the Affective Regulation and the Severity of Emotional Maltreatment (N = 157)

Rorschach Variables	*B*	*SE B*	*ß*
Depression Index	- .001	.141	- .001
Form-Color	- .056	.179	-.026
Color-Form Plus Pure C	.031	.119	.022

Note: R^2 = .001, F (3, 153) = .060, p = .981.

*$p \leq .05$. **$p \leq .01$. ***$p \leq .001$. +$p \leq .10$.

Cognitive Processes (as measured by the MMPI-A) and maltreatment. There were two research questions addressing the utility of the MMPI-A scales measuring *Cognitive Processes* in predicting the number and severity of maltreatment subtypes. The assumption of multicollinearity was not violated.

1. *Research Question*: Do MMPI-A scales measuring *Cognitive Processes* predict the number of maltreatment subtypes?

A. *Hypothesis*: As a set, the MMPI-A scales measuring *Cognitive Processes* will significantly predict the number of maltreatment subtypes.

1. The MMPI-A scales entered for *Cognitive Processes* did not predict the number of maltreatment subtypes ($F_{6,150}$ = .692, p = .657; see Table 41).

a) *Subhypothesis* (exploratory): Mean *T-scores* on Factor 8: Psychoticism will predict the number of maltreatment subtypes.

b) *Subhypothesis* (exploratory): *T-scores* on Sc3 (Lack of Ego-Mastery) will be related to the number of maltreatment subtypes.

Table 41

Summary of Multiple Regression Analyses Examining the Relations between MMPI-A Scales Measuring Cognitive Processes and the Number of Maltreatment Subtypes (N = 157)

MMPI-A Scales	*B*	*SE B*	*ß*
Factor Eight: Psychotocism	.011	.013	.137
Adolescent-Low Aspirations	-.004	.008	-.035
Adolescent-School Problems	-.002	.007	-.035
D4 (Mental Dullness)	.008	.009	.117
Sc3 (Lack of Ego Mastery - Cognitive)	.005	.010	.062
Infrequency Scale	-.010	.019	-.144

Note: R^2 = .027, F (6, 150) = .692, p = .657.

*$p \leq .05$. **$p \leq .01$. ***$p \leq .001$. +$p \leq .10$.

2. *Research Question*: Do MMPI-A scales measuring *Cognitive Processes* predict the severity of the four maltreatment subtypes?

A. *Hypothesis*: As a set, the MMPI-A scales measuring *Cognitive Processes* will significantly predict the severity of *Physical Abuse* experienced.

1. The MMPI-A scales entered for *Cognitive Processes* did not predict the severity of *Physical Abuse* ($F_{6,131}$ = 1.115, p = ..357; see Table 42).

a) *Subhypothesis* (exploratory): Higher mean *T-scores* on Factor 8: Psychoticism will be reflective of more severe *Physical Abuse*.

b) *Subhypothesis* (exploratory): Higher scores on Clinical Subscale Sc3 (Lack of Ego-Mastery) will be related to more severe *Physical Abuse*.

Table 42

Summary of Multiple Regression Analyses Examining the Relations between MMPI-A Scales Measuring Cognitive Processes and the Severity of Physical Abuse (N = 136)

MMPI-A Scales	*B*	*SE B*	*ß*
Factor Eight: Psychotocism	.013	.021	.114
Adolescent-Low Aspirations	-.005	.013	-.046
Adolescent-School Problems	-.001	.011	-.005
D4 (Mental Dullness)	.012	.015	.116
Sc3 (Lack of Ego Mastery - Cognitive)	.016	.016	.144
Infrequency Scale	-.017	.016	-.167

Note: R^2 = .049, F (6, 131) = 1.115, p = .357.

*$p \leq .05$. **$p \leq .01$. ***$p \leq .001$. +$p \leq .10$.

B. *Hypothesis*: As a set, the MMPI-A scales measuring *Cognitive Processes* will significantly predict the severity of *Sexual Abuse* experienced.

1. The MMPI-A scales entered for *Cognitive Processes* were found to, as a group, predict the severity of *Sexual Abuse* at a statistically significant level ($F_{6,136}$ = 3.162, p = .006; see Table 43).

a) *Subhypothesis* (exploratory): Higher mean *T-scores* on Factor 8: Psychoticism will be reflective of more severe *Sexual Abuse*.

1. As hypothesized, the average *T-score* of Factor 8: Psychoticism was significantly, positively related to the severity of *Sexual Abuse* experienced (t = 2.284, p = .024).

b) *Subhypothesis* (exploratory): Higher scores on Clinical Subscale Sc3 (Lack of Ego-Mastery) will be related to more severe *Sexual Abuse*.

1. An independent relation between Sc3 (Lack of Ego-Mastery) and the severity of *Sexual Abuse* was not indicated.

c) *Subhypothesis* (exploratory): Elevations on Validity Scale F will be associated with higher severity ratings of *Sexual Abuse*.

1. This hypothesis was not supported.

d) The data supported a unique association between Content Scale Adolescent-School Problems (A-sch) and the severity of S*exual Abuse* (t = -3.304, p=.001).

e) A-las was also positively associated with the severity of *Sexual Abuse* (t = 2.362, p=.020).

Table 43

Summary of Multiple Regression Analyses Examining the Relations between MMPI-A Scales Measuring Cognitive Processes and the Severity of Sexual Abuse (N = 143)

MMPI-A Scales	*B*	*SE B*	*ß*
Factor Eight: Psychotocism*	.060	.026	.365
Adolescent-Low Aspirations*	.038	.016	.239
Adolescent-School Problems***	-.050	.016	-.362
D4 (Mental Dullness)	.003	.019	.019
Sc3 (Lack of Ego Mastery - Cognitive)	.008	.021	.054
Infrequency Scale	-.032	.022	-.220

Note: R^2 = .122, F (6, 136) = 3.162, p = .006.

*$p \leq .05$. **$p \leq .01$. ***$p \leq .001$. +$p \leq .10$.

C. *Hypothesis*: As a set, the MMPI-A scales measuring *Cognitive Processes* will significantly predict the severity of *Neglect* experienced.

1. The MMPI-A scales entered for *Cognitive Processes* did not predict the severity of *Neglect* ($F_{6,142}$ = 2.008, p = .068; see Table 44).

Table 44

Summary of Multiple Regression Analyses Examining the Relations between MMPI-A Scales Measuring Cognitive Processes and the Severity of Neglect (N = 149)

MMPI-A Scales	*B*	*SE B*	*?*
Factor Eight: Psychotocism	- .053	.029	-.293
Adolescent-Low Aspirations	-.016	.018	-.090
Adolescent-School Problems*	.039	.016	.276
D4 (Mental Dullness)	.005	.021	.031
Sc3 (Lack of Ego Mastery - Cognitive)	-.024	.023	-.146
Infrequency Scale	.030	.023	.189

Note: R^2 = .078, F (6, 142) = 2.008, p = .068.

*$p \leq .05$. **$p \leq .01$. ***$p \leq .001$

D. *Hypothesis*: As a set, the MMPI-A scales measuring *Cognitive Processes* will significantly predict the severity of *Emotional Maltreatment* experienced.

1. The MMPI-A scales entered for *Cognitive Processes* did not predict the severity of *Emotional Maltreatment* ($F_{6,150}$ = .6761, p = .601; see Table 45).

Table 45

Summary of Multiple Regression Analyses Examining the Relations between MMPI-A Scales Measuring Cognitive Processes and the Severity of Emotional Maltreatment (N = 157)

MMPI-A Scales	*B*	*SE B*	*ß*
Factor Eight: Psychotocism	- .008	.029	-.045
Adolescent-Low Aspirations	- .012	.018	-.066
Adolescent-School Problems+	- .010	.016	-.070
D4 (Mental Dullness)	.021	.021	.137
Sc3 (Lack of Ego Mastery - Cognitive)	.021	.023	.127
Infrequency Scale	-.002	.024	- .011

Note: R^2 = .030, F (6, 1509) = .761, p = .601.
*$p \leq .05$. **$p \leq .01$. ***$p \leq .001$. +$p \leq .10$.

Cognitive Processes (as measured by the Rorschach) and maltreatment. There were two research questions addressing the utility of the Rorschach variables measuring *Cognitive Processes* in predicting the number and severity of maltreatment subtypes. Tolerance values were above .20.

3. *Research Question*: Do Rorschach variables measuring *Cognitive Processes* predict the number of maltreatment subtypes?

A. *Hypothesis*: As a set, the Rorschach variables measuring *Cognitive Processes* will predict, at a statistically significant level, the number of maltreatment subtypes.

1. The Rorschach variables entered for *Cognitive Processes* were significantly predictive of the number of maltreatment subtypes ($F_{6,150}$ = 3 .011, p = .008; see Table 46).

a) *Subhypothesis* (exploratory): The number of criteria met on the Perceptual Thinking Index will be positively related to the number of maltreatment subtypes.

1. This hypothesis was not supported. None of the variables added their own unique variation when the other variables were taken into account.

Table 46

Summary of Multiple Regression Analyses Examining the Relations between Rorschach Variables Measuring Cognitive Processes and the Number of Maltreatment Subtypes (N = 157)

Rorschach Variables	*B*	*SE B*	*ß*
Perceptual Thinking Index	-.022	.079	-.002
Developmental Quality-Vague	.112	.072	.121
Processing Efficiency	- .010	.016	- .053
Organizational Activity+	.040	.023	.165
Special Score: Preservative Response	.239	.154	.131
Lambda	-.237	.195	-.114

Note: R^2 = .108, F (6, 150) = 3 .011, p = .008.

*$p \leq .05$. **$p \leq .01$. ***p $\leq .001$ +$p \leq .10$.

4. *Research Question*: Do Rorschach variables measuring *Cognitive Processes* predict the severity of the four maltreatment subtypes?

A. *Hypothesis*: As a set, the Rorschach variables measuring *Cognitive Processes* will significantly predict the severity of *Physical Abuse* experienced.

1. The Rorschach variables entered for *Cognitive Processes* did not predict the severity of *Physical Abuse* ($F_{6,131}$ = .529, p = .785; see Table 47).

Table 47

Summary of Multiple Regression Analyses Examining the Relations between Rorschach Variables Measuring Cognitive Processes and the Severity of Physical Abuse (N = 136)

Rorschach Variables	*B*	*SE B*	*ß*
Perceptual Thinking Index	-.122	.131	-.083
Developmental Quality-Vague	.024	.120	.018
Processing Efficiency	-.007	.027	-.024
Organizational Activity	.020	.039	.053
Special Score: Preservative Response	.235	.267	.085
Lambda	.150	.339	.046

Note: R^2 = .024, F (6, 131) = .529, p = .785.

*$p \leq .05$. **$p \leq .01$. ***$p \leq .001$. +$p \leq .10$.

B. *Hypothesis*: As a set, the Rorschach variables measuring *Cognitive Processes* will significantly predict the severity of *Sexual Abuse* experienced.

1. The Rorschach variables entered for *Cognitive Processes* did not predict the severity of *Sexual Abuse* ($F_{6,136}$ = 2.685, p = .017; see Table 48).

a) *Subhypothesis* (exploratory): Processing efficiency (Zd) will be inversely related to the severity of *Sexual Abuse* experienced.

b) *Subhypothesis* (exploratory): A greater number of criteria met on the PTI will reflect a greater severity of *Sexual Abuse*.

Table 48

Summary of Multiple Regression Analyses Examining the Relations between Rorschach Variables Measuring Cognitive Processes and the Severity of Sexual Abuse (N = 143)

Rorschach Variables	*B*	*SE B*	ß
Perceptual Thinking Index*	.358	.168	.176
Developmental Quality-Vague	-.118	.154	-.063
Processing Efficiency	-.030	.035	-.075
Organizational Activity+	.093	.049	.189
Special Score: Preservative Response	-.148	.333	-.039
Lambda	-.503	.437	-.114

Note: R^2 = .106, F (6, 136) = 2.685, p = .017.
*$p \leq .05$. **$p \leq .01$. ***$p \leq .001$. +$p \leq .10$.

C. *Hypothesis*: As a set, the Rorschach variables measuring *Cognitive Processes* will significantly predict the severity of *Neglect* experienced.

1. The Rorschach variables entered for *Cognitive Processes* did not predict the severity of *Neglect* ($F_{6,142}$ = 1.639, p = .141; see Table 49).

Table 49

Summary of Multiple Regression Analyses Examining the Relations between Rorschach Variables Measuring Cognitive Processes and the Severity of Neglect (N = 149)

Rorschach Variables	*B*	*SE B*	ß
Perceptual Thinking Index	-.142	.185	-.064
Developmental Quality-Vague	.170	.171	.082
Processing Efficiency+	-.063	.038	-.146
Organizational Activity	- .057	.054	-.104
Special Score: Preservative Response	.463	.363	.113
Lambda	.063	.454	.014

Note: R^2 = .065, F (6, 142) = 1.639, p = .141.
*$p \leq .05$. **$p \leq .01$. ***$p \leq .001$. +$p \leq .10$.

D. *Hypothesis*: As a set, the Rorschach variables measuring *Cognitive Processes* will significantly predict the severity of *Emotional Maltreatment* experienced.

1. The Rorschach variables entered for *Cognitive Processes* did not predict the severity of *Emotional Maltreatment* ($F_{6,150}$ = 1.177, p = .321; see Table 50).

Table 50

Summary of Multiple Regression Analyses Examining the Relations between Rorschach Variables Measuring Cognitive Processes and the Severity of Emotional Maltreatment (N = 157)

Rorschach Variables	*B*	*SE B*	*ß*
Perceptual Thinking Index	-.156	.186	-.068
Developmental Quality-Vague	.209	.169	.100
Processing Efficiency	.010	.038	.022
Organizational Activity	.013	.054	.023
Special Score: Preservative Response	.166	.360	.040
Lambda	-.734	.457	-.155

Note: R^2 = .045, F (6, 150) = 1.177, p = .321.

*$p \leq .05$. **$p \leq .01$. ***$p \leq .001$. +$p \leq .10$.

Interpersonal Relatedness (as measured by the MMPI-A) and maltreatment.

There were two research questions addressing the utility of the MMPI-A scales measuring *Interpersonal Relatedness* in predicting the number and severity of maltreatment subtypes. There was no evidence of multicollinearity.

1. *Research Question*: Do MMPI-A scales measuring *Interpersonal Relatedness* predict the number of maltreatment subtypes?

A. *Hypothesis*: As a set, the MMPI-A scales measuring *Interpersonal Relatedness* will significantly predict the number of maltreatment subtypes.

1. The MMPI-A scales entered for *Interpersonal Relatedness* did not predict the number of maltreatment types ($F_{5,151} = 1.161$, $p = .331$; see Table 51).

a) *Subhypothesis* (exploratory): Higher levels of family conflict and coping by engaging in behaviors that are associated with substance use will be characteristics of individuals who have been multiply maltreated. Therefore, mean *T-scores* on Factor 7: Familial Alienation will be significantly related to the number of maltreatment subtypes.

Table 51

Summary of Multiple Regression Analyses Examining the Relations between MMPI-A Scales Measuring Interpersonal Relatedness and the Number of Maltreatment Subtypes (N = 157)

MMPI-A Scales	*B*	*SE B*	*ß*
Factor Four: Social Discomfort	.006	.011	.145
Factor Seven: Family Alienation	.006	.008	.073
Hy2 (Need for Affection)	.006	.008	.072
Pd4 (Social Alienation)	.006	.009	.079
Si2 (Social Avoidance)	-.008	.007	-.108

Note: $R^2 = .037$, F (5, 151) = 1.161, $p = .331$.
*$p \leq .05$. **$p \leq .01$. ***$p \leq .001$. +$p \leq .10$.

2. *Research Question*: Do MMPI-A scales measuring *Interpersonal Relatedness* predict the severity of the four maltreatment subtypes?

A. *Hypothesis*: As a set, the MMPI-A scales measuring *Interpersonal Relatedness* will significantly predict the severity of *Physical Abuse* experienced.

1. The MMPI-A scales entered for *Interpersonal Relatedness* did not predict the severity of *Physical Abuse* ($F_{5,135} = 2.302$, $p = .049$; see Table 52).

a) *Subhypothesis* (exploratory): Mean *T-scores* on Factor 7: Familial Alienation will be significantly positively related to the severity of *Physical Abuse* experienced.

b) *Subhypothesis* (exploratory): expected that Subscale Pd4 (Social Alienation) would be significantly related to the severity of *Physical Abuse*.

Table 52

Summary of Multiple Regression Analyses Examining the Relations between MMPI-A Scales Measuring the Interpersonal Relatedness and the Severity of Physical Abuse (N = 136)

MMPI-A Scales	*B*	*SE B*	*ß*
Factor Four: Social Discomfort	.019	.018	.135
Factor Seven: Family Alienation+	.024	.012	.209
Hy2 (Need for Affection)+	.021	.013	.173
Pd4 (Social Alienation)	.008	.015	.072
Si2 (Social Avoidance)	.002	.011	.018

Note: R^2 = .080, F (5, 135) = 2.302, p = .048.

*$p \leq .05$. **$p \leq .01$. ***$p \leq .001$ +$p \leq .10$.

B. *Hypothesis*: As a set, the MMPI-A scales measuring *Interpersonal Relatedness* will significantly predict the severity of *Sexual Abuse* experienced.

1. The MMPI-A scales entered for *Interpersonal Relatedness* did not predict the severity of *Sexual Abuse* ($F_{5,137}$ = 1.861, p = .105; see Table 53).

a) *Subhypothesis* (exploratory): Mean *T-scores* on Factor 7: Familial Alienation will be significantly related to the severity of *Sexual Abuse* experienced.

b) *Subhypothesis* (exploratory): expected that Subscale Pd4 (Social Alienation) would be significantly related to the severity of *Sexual Abuse*.

Table 53

Summary of Multiple Regression Analyses Examining the Relations between MMPI-A Scales Measuring the Interpersonal Relatedness and the Severity of Sexual Abuse (N = 143)

MMPI-A Scales	*B*	*SE B*	*ß*
Factor Four: Social Discomfort	.030	.024	.151
Factor Seven: Family Alienation+	-.029	.017	-.179
Hy2 (Need for Affection)	- .014	.018	-.080
Pd4 (Social Alienation)	.014	.019	.088
Si2 (Social Avoidance)	.001	.015	.004

Note: R^2 = .064, F (5, 137) = 1.861, p = .105.

*$p \leq .05$. **$p \leq .01$. ***$p \leq .001$. +$p \leq .10$.

C. *Hypothesis*: As a set, the MMPI-A scales measuring *Interpersonal Relatedness* will significantly predict the severity of *Neglect* experienced.

1. The MMPI-A scales entered for *Interpersonal Relatedness* did not predict the severity of *Neglect* ($F_{5,143}$ = .451, p = .812; see Table 54).

Table 54

Summary of Multiple Regression Analyses Examining the Relations between MMPI-A Scales Measuring the Interpersonal Relatedness and the Severity of Neglect (N = 149)

MMPI-A Scales	*B*	*SE B*	*ß*
Factor Four: Social Discomfort	-.005	.026	-.026
Factor Seven: Family Alienation	.022	.018	.129
Hy2 (Need for Affection)	.006	.020	.031
Pd4 (Social Alienation	-.020	.021	-.116
Si2 (Social Avoidance)	.007	.017	.041

Note: R^2 = .016, F (5, 143) = .451, p = .812.
*$p \leq .05$. **$p \leq .01$. ***$p \leq .001$. +$p \leq .10$.

D. *Hypothesis*: As a set, the MMPI-A scales measuring *Interpersonal Relatedness* will significantly predict the severity of *Emotional Maltreatment* experienced.

1. The MMPI-A scales entered for *Interpersonal Relatedness* predicted the severity of *Emotional Maltreatment* ($F_{5,151}$ = 3.123, p = .010; see Table 55).

a) There were no predications regarding any of the factors or individual scales pertaining to their relation with the severity of *Emotional Maltreatment*. However, the mean *T-score* for Factor Four: Social Discomfort was significantly positively related to the severity of *Emotional Maltreatment* (t = 2.55, p = .012).

b) The *T-score* for Harris-Lingoes Clinical Subscale Si2 (Social Avoidance) was negatively associated with the severity of *Emotional Maltreatment* (t = -3.34, p = .001).

Table 55

Summary of Multiple Regression Analyses Examining the Relations between MMPI-A Scales Measuring the Interpersonal Relatedness and the Severity of Emotional Maltreatment (N = 157)

MMPI-A Scales	*B*	*SE B*	*ß*
Factor Four: Social Discomfort*	.063	.025	.292
Factor Seven: Family Alienation+	.032	.017	.180
Hy2 (Need for Affection)	.003	.018	.015
Pd4 (Social Alienation	-.025	.020	-.142
Si2 (Social Avoidance) ***	- .053	.016	-.310

Note: R^2 = .094, F (5, 151) = 3.123, p = .010.

*$p \leq .05$. **$p \leq .01$. ***$p \leq .001$. +$p \leq .10$.

Interpersonal Relatedness (as measured by the Rorschach) and maltreatment.

There were two research questions addressing the utility of the Rorschach

variables measuring *Interpersonal Relatedness* in predicting the number and severity of maltreatment subtypes. Tolerance values were above .20.

3. *Research Question*: Do Rorschach variables measuring *Interpersonal Relatedness* predict the number of maltreatment subtypes?

A. *Hypothesis*: As a set, the Rorschach variables measuring *Interpersonal Relatedness* will predict, at a statistically significant level, the number of maltreatment subtypes.

1. The Rorschach variables entered for *Interpersonal Relatedness* were not related to the number of maltreatment subtypes ($F_{4,152}$ = 1.647, p = .165; see Table 56).

Table 56

Summary of Multiple Regression Analyses Examining the Relations between Rorschach Variables Measuring Interpersonal Relatedness and the Number of Maltreatment Subtypes (N = 157)

Rorschach Variables	*B*	*SE B*	*ß*
Coping Deficit Index	.021	.072	.028
Hypervigilance Index	.451	.350	.107
Good Human Response	.050	.049	.100
Poor Human Response*	.088	.040	.181

Note: R^2 = .042, F (4, 152) = 1.647, p = .165.

*$p \leq .05$. **$p \leq .01$. ***$p \leq .001$. +$p \leq .10$.

4. *Research Question*: Do Rorschach variables measuring *Interpersonal Relatedness* predict the severity of the four maltreatment subtypes?

A. *Hypothesis*: As a set, the Rorschach variables measuring *Interpersonal Relatedness* will be predict the severity of *Physical Abuse* experienced.

1. The Rorschach variables entered for *Interpersonal Relatedness* were not related to the severity of *Physical Abuse* ($F_{4,133}$ = .421, p = .794; see Table 57).

a) *Subhypothesis* (exploratory): A positive Hypervigilance Index will be associated with more severe *Physical Abuse*.

Table 57

Summary of Multiple Regression Analyses Examining the Relations between Rorschach Variables Measuring Interpersonal Relatedness and the Severity of Physical Abuse (N = 136)

Rorschach Variables	*B*	*SE B*	*?*
Coping Deficit Index	.075	.118	.066
Hypervigilance Index	-.385	.539	-.064
Good Human Response	-.036	.080	-.047
Poor Human Response	.011	.064	.016

Note: R^2 = .012, F (4, 133) = .421, p = .794.
*$p \leq .05$. **$p \leq .01$. ***$p \leq .001$. +$p \leq .10$.

B. *Hypothesis*: As a set, the Rorschach variables measuring *Interpersonal Relatedness* will significantly predict the severity of *Sexual Abuse* experienced.

1. The Rorschach variables entered for *Interpersonal Relatedness* predicted the severity of *Sexual Abuse* ($F_{4,138}$ = 3.717, p = .007; see Table 58).

a) *Subhypothesis* (exploratory): A positive Hypervigilance Index will be associated with more severe *Sexual Abuse*.

1. The exploratory hypothesis that positive Hypervigilance Index would be associated with more severe *Sexual Abuse* was not supported.

b) Human representational special score GHR (t = 2.35, p = .02) added its own variance when the other variables were controlled.

c) Human representational special score PHR (t = 3.09, p = .002) independently predicted the severity of *Sexual Abuse*.

Table 58

Summary of Multiple Regression Analyses Examining the Relations between Rorschach Variables Measuring Interpersonal Relatedness and the Severity of Sexual Abuse (N = 143)

Rorschach Variables	*B*	*SE B*	*?*
Coping Deficit Index	.171	.150	.110
Hypervigilance Index	.595	.705	.072
Good Human Response*	.248	.105	.230
Poor Human Response**	.257	.083	.258

Note: R^2 = .097, F (4, 138) = 3.717, p = .007.

*$p \leq .05$. **$p \leq .01$. ***$p \leq .001$. +$p \leq .10$.

C. *Hypothesis*: As a set, the Rorschach variables measuring *Interpersonal Relatedness* will significantly predict the severity of *Neglect* experienced.

1. The Rorschach variables entered for *Interpersonal Relatedness* did not predict the severity of *Neglect* ($F_{4,144}$ = 2.108, p = .083; see Table 59).

Table 59

Summary of Multiple Regression Analyses Examining the Relations between Rorschach Variables Measuring Interpersonal Relatedness and the Severity of Neglect (N = 149)

Rorschach Variables	*B*	*SE B*	*ß*
Coping Deficit Index	-.184	.165	-.110
Hypervigilance Index*	1.940	.822	.196
Good Human Response	.028	.112	.025
Poor Human Response	-.071	.093	-.064

Note: R^2 = .055, F (4, 144) = 2.108, p = .083.

*$p \leq .05$. **$p \leq .01$. ***$p \leq .001$. +$p \leq .10$.

D. The Rorschach variables entered for *Interpersonal Relatedness* predicted the severity of *Emotional Maltreatment* ($F_{4,152}$ = 1.631, p = .169; see Table 60).

Table 60

Summary of Multiple Regression Analyses Examining the Relations between Rorschach Variables Measuring Interpersonal Relatedness and the Severity of Emotional Maltreatment (N = 157)

Rorschach Variables	*B*	*SE B*	*ß*
Coping Deficit Index	.054	.164	.032
Hypervigilance Index	.469	.795	.049
Good Human Response+	.187	.111	.163
Poor Human Response+	.158	.091	.142

Note: R^2 = .041, F (4, 152) = 1.631, p = .169.

*$p \leq .05$. **$p \leq .01$. ***$p \leq .001$. +$p \leq .10$.

Summary of Current Findings

Multiple regression analysis indicated that the MMPI-A scales and Rorschach variables measuring the *Self-System* scales both significantly predicted the severity of *Physical Abuse*. When entered as separate blocks in a hierarchical regression analysis to determine if the two instruments added information above and beyond the other, regardless of the order, the MMPI-A scales and Rorschach variables added variance in predicting *Physical Abuse* severity. The *Self-System* Rorschach variables also predicted the number of maltreatment subtypes.

The *Cognitive Processes* MMPI-A scales significantly predicted the severity of *Sexual Abuse*. The *Cognitive Processes* Rorschach variables significantly predicted the number of maltreatment subtypes. The *Interpersonal Relatedness* MMPI-A scales significantly predicted the severity of *Emotional Maltreatment*. The *Interpersonal Relatedness* Rorschach variables significantly predicted the severity of *Sexual Abuse*.

Neither instrument across the four constructs was related to the severity of *Neglect* nor did any of the *Affective Regulation* items predict the number and severity of maltreatment subtypes. Table 61 provides an overview of the findings.

Table 61

Summary of Findings: MMPI-A Scales and Rorschach Variables Predicting the Number and Severity of Maltreatment Subtypes

Maltreatment Attributes	***Self-System***	***Affective Regulation***	***Cognitive Processes***	***Interpersonal Relatedness***
Number of maltreatment subtypes	Rorschach	None	Rorschach	None
Severity of *Physical Abuse*	MMPI-A Rorschach	None	None	None
Severity of *Sexual Abuse*	None	None	MMPI-A	Rorschach
Severity of *Neglect*	None	None	None	None
Severity of *Emotional Maltreatment*	None	None	None	MMPI-A

CHAPTER FIVE

Discussion

The current study examined whether MMPI-A scales and Rorschach variables, organized according to four different constructs (i.e., the *Self-System*, *Affective Regulation, Cognitive Processes,* and *Interpersonal Relatedness*), predicted the number of maltreatment and severity of maltreatment subtypes experienced by adolescents. The intention was not to determine if these two instruments could discriminate between individuals with certain abuse characteristics in their history from those who did not have such histories. Rather, the purpose of this study was to determine the extent to which these two personality measures were sensitive to certain aspects of such experiences (i.e., the number of maltreatment subtypes and the severity of each type). The rational was that if these assessment tools, either by themselves, or in conjunction with each other, were able to delineate the scope of the maltreatment experienced, it would support their utility in psychological assessments of adolescents who have been maltreated.

This chapter will begin by reviewing the findings and how they fit in with previous research as well as existing theory. The next part will address the Maltreatment Classification System, including an examination of its utilization in this study, particularly with an adolescent sample. The discussion of the MCS will be followed by an overview of the MMPI-A and then the Rorschach. The presentation for both instruments will include considerations pertaining to scoring, demographics, and interpretation. Limitations will be addressed throughout the body of this chapter as

deemed relevant, as well as after the coverage of these two personality measures. This chapter will conclude will a brief summary and considerations for future research.

Construct Approach to Variable Selection

Personality Constructs Inherent in the MMPI-A and Rorschach

During adolescence, there are a multitude of psychological tasks, including the formation of self-identity, the mastery of emotional control, the development of formal operations, and the process of individuation. There are some instances in which environmental circumstances interact with biological processes, making an individual vulnerable to psychopathological symptoms. When some of the environmental stressors revolve around child maltreatment, youth are even more susceptible to developing maladaptive personality characteristics. Cicchetti and Toth (1995) advanced the position that child maltreatment is best viewed from a developmental psychopathological model. The model affords a breakdown of the risk and protective influences present within the child and in his or her environment; it explores the disruption of such trauma to the development of tasks, such as a sense of self, affect regulation, cognitive processes, and interpersonal relationships. Such personality dynamics have been identified as constructs measured by both the MMPI-A and Rorschach. Findings from the current study indicate that having knowledge about traits associated with each provides insight into the number and severity of adolescents' maltreatment experiences.

The Construct of the Self-System

Self-System (as measured by the MMPI-A) and maltreatment. There were two primary research questions pertaining the MMPI-A scales measuring the *Self-System*

prediction of the number and severity of maltreatment subtypes: 1) Do MMPI-A scales measuring the *Self-System* predict the number of maltreatment subtypes?; and 2) Do MMPI-A scales measuring the *Self-System* predict the severity of the four maltreatment subtypes? The MMPI-A scales measuring the *Self-System* did not predict the number of maltreatment subtypes, nor did they predict the severity of *Sexual Abuse*, *Neglect*, or *Emotional Maltreatment*. However, scores on the scales related to the *Self-System* predicted the severity of *Physical Abuse* experienced.

There had been no subhypotheses about which scales would contribute their own unique variation after controlling for scores on the other scales in the prediction of the severity of *Physical Abuse*. However, the mean *T-score* of Factor 5: Health Concerns was significantly positively related to the severity of *Physical Abuse*, the mean *T-score* on Adolescent-Low Self-Esteem (A-lse) was inversely related to the severity of *Physical Abuse*, and Si3 (Alienation of Self and Others) was significantly positively related to the severity of *Physical Abuse*. These findings suggest that personality characteristics, such as greater concerns about physical well-being, greater self-doubt, and more indecisiveness, are characteristic of individuals who have experienced severe *Physical Abuse*. However, there was an inverse relation between scores on A-lse and the severity of *Physical Abuse.* Higher scores on this content scale represent lower self-esteem. Thus, higher scores are more likely to occur with no history of physical maltreatment or with less severe forms of *Physical Abuse*.

These findings present a confusing picture. A-lse has been purported to measure negative opinions about oneself; Si3 (Alienation of Self and Others) has also been noted

to reflect low self-esteem and self-concept as well as lack of confidence in one's abilities. In light of those descriptions, it is difficult to resolve how low scores on one (i.e., A-lse), yet high scores on the other [i.e., Si3 (Alienation of Self and Others)] are characteristic of individuals who have experienced more severe *Physical Abuse*.

One caveat is that a visual analysis of how the mean *T-scores* on A-lse varied according to the severity of maltreatment indicate that scores peak when individuals have a severity rating of '3' and drop back down with a severity rating of '4.' It is possible that individuals who were deemed to have experienced severe *Physical Abuse* actually encountered less instances of *Physical Abuse*, whereas individuals with a severity rating of '3,' which was coded when individuals received significant marks and welts as a result of *Physical Abuse* may have experienced more frequent assaults. It would be important to conduct a more fine-grained analysis of the interaction among other maltreatment attributes, such as age of onset, duration, and frequency of the *Physical Abuse*.

Additionally, it is important to note that although the regression model was significant, the mean *T-scores* on the various scales were not quite in the at-risk range. Therefore, that raises the issue of whether or not these findings have clinical meaning despite their statistical significance. It might be difficult for a clinician to notice this pattern because the scores are not clinically elevated. One may disregard these findings, claiming that they do not have clinical utility. However, perhaps a more positive interpretation might be to view these scores as an indication that contrary to previous notions that maltreatment leads to negative outcomes, these adolescents may be quite

resilient, and therefore, even those who endured severe *Physical Abuse*, do not uniformly exhibit negative self-concepts.

Consideration should certainly be given to the fact that the nature of the evaluation may lend itself to examinees presenting favorable impressions, and thus, many of these adolescents may have denied symptoms they are experiencing. Accordingly, when adolescents with severe *Physical Abuse* histories enter into treatment, therapists may be advised to pay particular attention to the client's sense of self. Moreover, even more than considering the impact of physical abuse on the *Self-System* from a clinical point of view, from a psychometric perspective, these findings provide evidence for the sensitivity of the MMPI-A scales to predict the severity of *Physical Abuse* experienced.

One way to determine if the results have interpretive value would be to compare the current findings to previous research. Unfortunately, there were very few studies that examined MMPI-A score patterns among individuals who had been physically abused. One study (Hillary & Schare, 1993) did not find any elevations on the MMPI-A clinical scales among males who had either been sexually or physically abused or both. Two studies (Engels et al., 1994; Goldwater & Duffy, 1990) that did include adults who had been physically abused as children only included the basic scales in their analysis. The four scales (Scales 1 (Hs: Hypochondriasis), 2 (D: Depression), 3 (Hy: Hysteria), and 0 (Si: Social Introversion) represented in the *Self-System* did not differentiate individuals who had been physically abused from those who had not. Replication of these findings is needed to ensure the accuracy of the current results.

Even if these findings are upheld in future investigations, scales measuring the *Self-System* only accounted for 14.2% of the variance. Therefore, clinicians and researchers need to consider other variables when trying to determine the severity of *Physical Abuse* experienced. There may be other trauma or family-related factors that relate to the severity of the abuse. Some studies that have controlled for particular family variables have found a reduction in the number of scales that differ among groups. For example, in a study examining the influence of family psychopathology on the impact of sexual abuse, Nash, Hulsey, et al. (1993) discovered that without considering family psychopathology, seven scales were elevated among women who had been sexually abused. However, once they controlled for this variable, only Scale 3 (Hy: Hysteria) was elevated. Thus, it is possible that parental mental illness might not only contribute to personality formation, but it may also increase the likelihood that the maltreatment is more intense.

Self-System (as measured by the Rorschach) and maltreatment. There were two primary research questions pertaining the Rorschach variables measuring the *Self-System* prediction of the number and severity of maltreatment subtypes: 1) Do Rorschach variables measuring the *Self-System* predict the number of maltreatment subtypes?; and 2) Do Rorschach variables measuring the *Self-System* predict the severity of the four maltreatment subtypes? Overall, the models were significant for the number of maltreatment subtypes and the severity of *Physical Abuse*. The Rorschach variables measuring the *Self-System* did not predict the severity of *Sexual Abuse, Neglect,* and *Emotional Maltreatment*.

The two subhypotheses pertaining to the prediction of the number of maltreatment subtypes had been that a greater number of content codes of Anatomy or X-ray and the special score of Morbid responses would be indicative of more maltreatment experiences. Results supported that the perceptions of oneself as damaged or broken (Special Score: MOR) and a defensive response style (Special Score: PER) are characteristic of multiple forms of maltreatment. Contrary to expectations, the variable capturing bodily concerns (An+Xy) was not an indicator of the number of maltreatment subtypes when other variables were controlled for. The hypothesis that An+Xy would add its own unique variance to the prediction of the number of different subtypes was not supported. The hypothesis had been put forth based on the notion that regardless whether children are either physically or sexually abused, they are physically violated; neglect can relate to their physical needs not being met and emotional maltreatment could exacerbate their preoccupation with their body. Therefore, an accumulation of these maltreatment subtypes would foster a sense of anxiety related to the body. It is possible that the content code of X-ray may have a different meaning from Anatomy. Moreover, the content codes of Sex and Blood, which are part of the TC/R (Kamphuis et al., 2000) and have been identified in other studies (Holaday et al. 1994) as being more prevalent among individuals with sexual abuse histories, may also be an important variable to consider in future studies.

As predicted, the number of Morbid special scores was significantly, positively related to the number of maltreatment subtypes present in an adolescent's history. Thus, the more percepts an adolescent has of an object or figure as damaged or dysphoric, the

stronger the likelihood that the individual has been multiply maltreated. An additional variable, the presence of the special score, PER, was also associated to the number of maltreatment subtypes. Kamphuis et al. (2000) did not believe that this special score was relevant to a sexual abuse history among adults; thus, the researchers included it to support discriminate validity. However, Zivney et al. (1988) found that youth who had been sexually abused early in their development were more likely to have both MOR and PER in their protocols compared to youth who had been sexually abused after age 9 and children and adolescents who had not been sexually abused. It is possible that the relationship of PER with early onset sexual abuse was due to a third factor; that is, perhaps children who are sexually abused at a younger age are also more likely to experience other forms of maltreatment.

Just as with the number of maltreatment subtypes, it had been expected that An+Xy and MOR would be related to the severity of *Physical Abuse*. The results indicated that a lower self-worth (Egocentricity Index) and perception of oneself as damaged (MOR) was more likely to be present with *Physical Abuse* that resulted in an injury to the child; however, bodily concern (An+Xy) was not. Accordingly, the data supported the subhypothesis that the number of Morbid special scores were associated with the severity of *Physical Abuse* experienced when all other *Self-System* variables in the block were taken into account. Conceptually, the experience of severe *Physical Abuse* could very well lend itself to the development of a view of oneself as damaged or a pessimistic view of the world. Furthermore, similar to the current study's findings, other studies have found more Morbid responses among children with different traumatic

histories. For instance, Leifer et al. (1991) and Shapiro et al. (1990) found significantly more MOR in children who were sexually abused (compared to chronically ill children) and Zivney et al. (1988) found significantly more MOR among children with early onset sexual abuse (compared to late onset). Thus, it is possible that MOR might be effective discriminators of whether a type of sexual abuse has occurred, but not related to its severity, whereas, it is associated with the severity of *Physical Abuse* experienced. Likewise, Talbott's (2001) findings supported the importance of morbid special scores in identifying youth who had experienced more than one maltreatment subtype as well as those who had been physically abused. Specifically, the researcher reported more MOR among individuals who had been multiply maltreated compared to neglected or nonmaltreated individuals. However, individuals who had been multiply maltreated did not differ in the number of MOR from individuals who had been physically abused.

Additionally, Egocentricity Index values were found to be significantly related to the severity of *Physical Abuse*. This variable was not specifically identified as a hypothesis, primarily due to the lack of trauma research on this variable as well as the mixed findings. There have been some mixed findings pertaining to the Egocentricity Index. Bank (2001) found a difference based on sexual abuse history on the Egocentrity Index, whereas Leifer et al. (1991) did not find a difference between children who had been sexually abused and children with chronic illnesses. Talbott (2001) did not find differences in the Egocentricity Index according to maltreatment experience, rather all children (even the control group) had lower values. Again, when compared to the norm, a couple of studies found that children who had been traumatized had lower Egocentricity

Index values compared to the published norms. Thus, it possible that the entire sample will evidence a lower Egocentricity Index and the extent to which this *Self-System* variable contributes to the prediction of the number and severity of the maltreatment subtypes is not clear.

Incremental validity. The results indicated that the MMPI-A scales and Rorschach variables measuring the *Self-System* predicted the severity of *Physical Abuse* largely independent of one another. Thus, using both instruments increases the amount of information that a clinician has about the severity of *Physical Abuse* experienced. Indeed, when results of a self-report instrument and a projective technique are at odds the clinician is faced with a dilemma. Such a scenario emerged relevant to the construct of the *Self-System*. Contrary to the findings on the MMPI-A scales, where a relation existed with the severity of *Physical Abuse,* but the mean *T-scores* were in the average range. A similar relation existed between the Rorschach variables and the severity of *Physical Abuse*, but the entire sample was markedly lower, with even lower index scores present with more severe physical abuse. The question can be raised as to whether the Rorschach captures deeper feelings of self-criticalness and poor self-concept, or is it more prone to psychopathological profiles, and thus, the adolescents appear to be more distressed than they actually are (e.g., Wood, Nezworski, Garb, & Lilienfeld, 2001b).

Belter et al. (1989) also found the mean scores of adolescent in-patients on self-report measures to be in the normative range, whereas the mean Rorschach Egocentricity Index was lower than the norms. The researchers questioned the interpretation of the Egocentricity Index as a measure of self-worth. Rather, they argued that it could simply

represent the degree to which an individual self-reflects, regardless of whether the self-evaluation is negative or positive. In order to gain further knowledge about an individual's self-concept, the researchers noted the importance of examining other variables (e.g., Vista, Form Dimension, etc.) in conjunction with the Egocentricity Index; the current study did just that.

The Construct of Affective Regulation

Affective Regulation (as measured by the MMPI-A) and maltreatment. There were two primary research questions pertaining to the MMPI-A scales measuring *Affective Regulation* in the prediction of the number and severity of maltreatment subtypes: 1) Do MMPI-A scales measuring the *Affective Regulation* predict the number of maltreatment subtypes?; and 2) Do MMPI-A scales measuring the *Affective Regulation* predict the severity of the four maltreatment subtypes? The MMPI-A scales measuring *Affective Regulation* failed to predict the number or severity of maltreatment subtypes.

Clinical Subscales Pd5 (Self-Alienation) and Sc5 (Lack of Ego Mastery-Defective Inhibition) were expected to be positively related to the number of maltreatment subtypes and the severity of *Physical* and *Sexual Abuse*. These subhypotheses had been formulated because their parent scales, 4 (Pd: Psychopathic Deviate) and 8 (Sc: Schizophrenia), have been identified as discriminating between individuals with and without physical and/or sexual abuse histories (Engels et al., 1994; Goldwater & Duffy, 1990). However, the clinical scales themselves may be needed to help explain an individual's maltreatment experience, rather than just a subset of the items (i.e., the clinical subscales) from the parent scales.

One critical factor, however, was the fact that putting all of these scales into the regression analysis violated the assumption of multicollinearity. In addition to affective disorders sharing commonality in symptom presentation, many of the items that comprise each many of the scales overlap. Therefore, aside from examining the MR analyses, . Supplemental multiple regression analyses were conducted using the factor score obtained through principal components analysis. The *Affective Regulation* scales did not predict the number of maltreatment subtypes, the severity of *Sexual Abuse*, the severity of *Neglect*, or the severity of *Emotional Maltreatment*. The *Affective Regulation* factor score significantly predicted the severity of *Physical Abuse* ($F_{1,136} = 6.992$, $p = .009$). However, because there was only one independent variable, that being the total factor score, only 4.9% of the variance was accounted for in this prediction. The MMPI-2 contains a Post-Traumatic Stress scale and the development of a scale specifically assessing traumatic reactions would help aid in understanding the how the development of emotional control and awareness are impacted by maltreatment. Overall, it appears that other measures of emotional management and processing may be needed to help capture the impact of traumatic events.

Affective Regulation (as measured by the Rorschach) and maltreatment. There were two primary research questions pertaining to the Rorschach variables measuring *Affective Regulation* in the prediction of the number and severity of maltreatment subtypes: 1) Do Rorschach variables measuring Affective Regulation predict the number of maltreatment subtypes?; and 2) Do Rorschach variables measuring *Affective Regulation* predict the severity of the four maltreatment subtypes? Just as with the

MMPI-A, the Rorschach variables measuring *Affective Regulation* did not predict the number or severity of maltreatment experiences.

Although the Rorschach variables measuring *Affective Regulation* did not account for enough variance in the number of maltreatment experience to yield a significant regression model, CF+C was significantly, positively correlated to the number of maltreatment subtypes. Responses that are dominated by color over form have a documented history of relating to traumatic experiences (e.g., AspenLeiter, 2000; Holaday, 2000; Kaser-Boyd, 1993; Sloan et al., 1995; Swanson et al., 1990; Talbott, 2001). More data are needed to better understand the type of traumatic experience and the development of emotional control as measured by the FC:CF+C ratio on the Rorschach.

The predictions that the DEPi and the form-color ratio would be significantly related to the severity of *Sexual Abuse* were grounded in previous research findings. Bank (2001) found that the DEPi effectively discriminated between individuals with and without a sexual abuse history. Shapiro et al. (1990) and Leifer et al. (1991) had found that the Depression Index (DEPi) was elevated in African American females who were sexually abused compared to children with medical illnesses. Further exploratory analysis in the latter study failed to demonstrate that the DEPi varied according to various abuse characteristics, including total number of incidents, whether there was penetration (oral, vaginal, or anal), number of perpetrators, who the perpetrator was, and how long the perpetrator lived in the victim's household. However, Zivney et al. (1988) found elevations on the DEPi only when the abuse occurred early in development.

An exploratory hypothesis had also been put forth pertaining to the FC:CF+C ratio in the prediction of *Neglect* severity. Only one dissertation study had examined Rorschach assessment of children who had been neglected and that researcher had found a disproportionate ratio among these children (Talbott, 2001). The prediction had also been grounded in theory that the development of regulatory processes is reliant on caregiver guidance and modeling (Seinfeld, 1991).

It is possible that the expression of depressive symptoms and the way in which an individual processes negative emotion is not indicative of the severity with which these forms of maltreatment occurred. However, consideration must be given to the fact that the DEPi has been modified since the publication of these earlier studies. Therefore, further research should examine the utility of the DEPi in understanding the nature of the trauma.

The Construct of Cognitive Processes

Cognitive Processes (as measured by the MMPI-A) and maltreatment. There were two primary research questions pertaining to the MMPI-A scales measuring *Cognitive Processes* in the prediction of the number and severity of maltreatment subtypes: 1) Do MMPI-A scales measuring *Cognitive Processes* predict the number of maltreatment subtypes?; and 2) Do MMPI-A scales measuring *Cognitive Processes* predict the severity of the four maltreatment subtypes? The MMPI-A scale measuring *Cognitive Processes* did not predict the number of maltreatment subtypes, nor the severity of *Physical Abuse, Neglect,* and *Emotional Maltreatment*. However, supporting previous findings, *Cognitive Processes* variables significantly predicted the severity of *Sexual Abuse*. It had been

expected that Factor 8: Psychoticism, Sc3 (Lack of Ego-Mastery), and Validity Scale F would be positively related to the severity of *Sexual Abuse.* These hypotheses were partially supported. The findings indicated that Factor 8: Psychoticism was positively related, Adolescent-Low Aspirations (A-las) was positively related, and Adolescent-School Problems was negatively related; the latter scale was contrary to the direction that might be expected.

Overall, these findings suggest that the MMPI-A scales related to *Cognitive Processes* predict the severity of *Sexual Abuse* experienced. Specifically, after controlling for scales measuring personality characteristics, such as academic difficulties, low motivation, problems with concentration, poor decision-making, individuals who experienced more severe *Sexual Abuse* were differentiated by the presence of suspiciousness and distorted thinking. Perhaps the most important implication of these findings is that should an adolescent display such ideational thinking during assessment, examiners should be cautious in concluding that the child is either paranoid or psychotic.

Although the findings do not suggest that having been sexually abused increases the likelihood that an individual will exhibit impairment in reality testing, the data does indicate that characteristics such as suspiciousness, strange thought processes, and distorted thinking, could be markers of severe *Sexual Abuse*. Caldwell (2001) presented data, which supported that people who have elevations on Scale 6 (Pa: Paranoia) have a disproportionate occurrence of coercive parenting in their histories. The author then asked, "To what, then, does the Scale 6 represent an adaptation? I think it is an acute sensitization to the slightest cues of anger in others, what are even very small hints as to

the possibility of another attack or imminently coercive punishment" (p. 10). Most of the adolescents in the current sample were in a state of flux; many of them experienced multiple moves; many had been sexually abused by a person, or persons, assuming a role of someone who should have been trustworthy. Given these circumstances, would it not be actually adaptive to adopt a shielding watchfulness to any signs of reserve in others? Other authors (e.g., Wakefield & Underwager, 1993) also discussed such situational effects on Scale 6 (Pa: Paranoia).

The prediction that there would be a positive association between the Infrequency Scale (Scale F) and the severity of *Sexual Abuse* was based on previous findings that scores on this validity scale were higher among individuals who had been sexually abused compared to individuals without sexual abuse histories (e.g., Klotz-Flitter et al., 2003; Forbey et al., 2000; Holifield et al., 2002). Such studies noted that the F-scale might signify dissociative symptoms and genuine distress rather than malingering or "faking bad." In order to really understand what Scale F is actually measuring, there needs to be more investigations, such as the one that Klotz-Flitter et al. (2003) conducted whereby the researchers examined the relations between this scale and other measures of psychopathology and traumatic reactions (e.g., dissociation) among women who had been sexually abused.

A-las was positively associated with the severity of *Sexual Abuse*, suggesting that a negative achievement orientation is indicative of severe *Sexual Abuse*. Forbey et al. (2000) had not found this content scale to differ between adolescents who had been sexually abused and adolescents without histories of sexual abuse. The findings make

sense, however, because research on the effects of sexual abuse has identified symptoms such as loss of interest and poor motivation..

Interestingly, scores on Adolescent-School Problems (A-sch) were inversely related to the severity of *Sexual Abuse*. Neither Forbey et al. (2000) nor Williams et al. (1992) found differences on scores of this content scale between adolescents who had been sexually abused and adolescents who had not been sexually abused. These findings are surprising considering that higher scores on A-las were an indicator of severe *Sexual Abuse* as well as the fact that much of the literature highlights academic and behavioral difficulties at school as a warning sign for sexual abuse. Nonetheless, there is some support that survivors of sexual abuse are perfectionists feeling that worth can only be attained through achievement. It is important to note that the results simply indicate that school problems are less likely to be reported by adolescents with more severe histories of *Sexual Abuse*; that is, although they may be denying school problems, there is a chance that they may actually be experiencing academic and behavioral difficulties at school.

Cognitive Processes (as measured by the Rorschach) and maltreatment. There were two primary research questions pertaining to the Rorschach variables measuring *Cognitive Processes* in the prediction of the number and severity of maltreatment subtypes: 1) Do Rorschach variables measuring *Cognitive Processes* predict the number of maltreatment subtypes?; and 2) Do Rorschach variables measuring *Cognitive Processes* predict the severity of the four maltreatment subtypes? The Rorschach variables related to *Cognitive Processes* significantly predicted the number of maltreatment subtypes, but they did not predict the severity of any of the maltreatment

subtypes. The data further indicated that the Rorschach variables measuring *Cognitive Processes* jointly contributed enough variance to predict the number of maltreatment types, but that none of them add more variance once controlling for the other variables.

Taken together, the data indicated that protocols with more Developmental Quality of vague (DQv), the presence of the special score of a preservative response (PSV), a higher Zf, and a lower Lambda value are reflective of multiple forms of maltreatment. The Perceptual Thinking Index (PTI) and Processing Efficiency (Zd) varied very little according to the number of maltreatment subtypes. In fact, with those variables included, 10.8% of the variance is accounted for in the prediction of the number of maltreatment subtypes. When the same analysis was run without those two variables, 10.5% of the variance was still accounted for by the remaining four *Cognitive Processes* variables.

The Construct of Interpersonal Relatedness

Interpersonal Relatedness (as measured by the MMPI-A) and maltreatment.

There were two primary research questions pertaining to the MMPI-A scales measuring *Interpersonal Relatedness* in the prediction of the number and severity of maltreatment subtypes: 1) Do MMPI-A scales measuring *Interpersonal Relatedness* predict the number of maltreatment subtypes?; and 2) Do MMPI-A scales measuring *Interpersonal Relatedness* predict the severity of the four maltreatment subtypes? The MMPI-A scales measuring *Interpersonal Relatedness* did not predict the number of maltreatment subtypes, nor the severity of *Physical Abuse, Sexual Abuse,* and *Neglect*. However, these scales did significantly predict the severity of *Emotional Maltreatment*.

When all the other personality characteristics, such as family relationships, need for affection, reports of loneliness, and degree of involvement with social activities, were taken into account, discomfort with one's social environment as measured by Factor Four: Social Discomfort, added its own unique variance in predicting the severity of *Emotional Maltreatment* experienced. Returning to Caldwell's (2001) assertion, that having endured "repeated and sharply distressing occasions of being unexpectedly startled or experiencing unpredictable emotional shock . . . the system adapts by repeatedly readying itself for any other unpredictable onsets of distress" (p. 12), it is possible that insecurity in social situations manifests itself in response to emotional maltreatment.

In contrast to the above findings, avoidance of social activities as captured by Subscale Si2 (Social Avoidance) was inversely related to the severity of *Emotional Maltreatment*, even when all other scores were taken into account. It is difficult to resolve the dilemma as to why traits such as social anxiety and shyness would be indicative of severe *Emotional Maltreatment*, when at the same time, lower scores on a measure of avoidance of contact or involvement with others is also reflective of more severe *Emotional Maltreatment*. These findings are particularly counterintuitive when the mean *T-score* of Factor Four: Social Discomfort and Subscale Si2 (Social Avoidance) are significantly correlated with each other, supporting that individuals who score highly on one, score highly on the other. Nonetheless, higher scores on Factor Four: Social Discomfort and lower scores on Subscale Si2 (Social Avoidance) reflects a pattern that predicts the severity of *Sexual Abuse*. This does not necessarily mean that individuals

who have been sexually abused are more likely to initiate social contact, just that it appears that the more severely abused they are, the less likely they are to avoid activities. The inverse relationship between *Sexual Abuse* severity and avoidance of social activities may be attributable to the fact that most of these adolescents were receiving services through social services and were, by the nature of the shelter or foster care experience, involved in many activities and interventions. In fact, the positive association between the severity of *Sexual Abuse* and scales measuring social discomfort suggested that the more severely abused an individual was, the more likely they were to experience discomfort in those social situations. Thus, just because they are likely to be less avoidant of social engagements does not mean they are comfortable with such activities.

Interpersonal Relatedness (as measured by the Rorschach) and maltreatment.

There were two primary research questions pertaining to the Rorschach variables measuring *Interpersonal Relatedness* in the prediction of the number and severity of maltreatment subtypes: 1) Do Rorschach variables measuring *Interpersonal Relatedness* predict the number of maltreatment subtypes?; and 2) Do Rorschach variables measuring *Interpersonal Relatedness* predict the severity of the four maltreatment subtypes? The Rorschach variables purported to capture personality features of *Interpersonal Relatedness* were not predictive of the number of maltreatment subtypes, NOR the severity of *Physical Abuse, Neglect,* or *Emotional Maltreatment*. They did, however, significantly predict the severity of *Sexual Abuse* experienced.

When the other variables were taken into account, special scores GHR and PHR were both significantly positively related to the severity of *Sexual Abuse* experienced.

These special scores capture the respondent's understanding of people and relationships, with GHR presumably representing positive interpersonal perceptions and interactions, and PHR as denoting inaccurate perceptions of others or a view of them as harmful (Viglione, Perry, Jansak, Meyer, & Exner, 2003). Therefore, it is possible that since both were positively related to the severity of *Sexual Abuse*, the number of human content was the primary variable related to the severity of *Sexual Abuse*, and the nature of the human representation special scores were merely capturing that relation. In a follow-up analysis in which the number of human content codes replaced the special scores of GHR and PHR, the significance of the overall model weakened. The number of human content did increase as the severity of *Sexual Abuse* increased, but human content accounted for less variation than did GHR and PHR. Since GHR and PHR are not only assigned when there is human content, but also when animals engage in aggressive movement or when a human emotional experience is expressed, it appears that paying attention to these special scores is quite important.

Given the link between these two special scores and the severity of *Sexual Abuse*, GHR and PHR show promise and warrant greater attention. They were originally referred to as Human Experience Variables (HEV) and are now called Human Representational Variables (HRV). Many researchers have proposed that rather than examining them as separate variables, a ratio of GHR:PHR should be used (e.g., Burns & Viglione, 1996; Viglione et al., 2003). Wood et al. (1999) questioned the interpretation of these special scores as a measure of interpersonal relatedness. Wood, Nezworski, Stejskal, and Garven (2001) criticized the research conducted on these variables because there has not been a

set standard for the way the ratio is calculated. More research is needed to determine the best way to interpret the HRV special scores and to explore how perceptions of people as measured by the HRV can help clinicians understand the nature of an individual's maltreatment experience.

Contrary to the exploratory hypothesis, there was not a greater likelihood for a positive Hypervigilance Index as the severity of *Physical Abuse* and/or *Sexual Abuse* increased. The prediction was based on van der Kolk's (1985) theory that abused adolescents respond to others and to their environment with guardedness and mistrust as a protective mechanism; they are overly alert and aware of their surroundings. The low number of positive HVI (n = 9) limited the interpretive value of this constellation, as there were times when some of these participants were excluded from the analysis because the level of severity for a particular maltreatment type was unknown. Nonetheless, the data did not show any clear pattern according to categories of abuse. It is important to note, however, that the percentage of positive HVI varied slightly from the data provided by Exner (2001); the breakdown for this sample was: age 14 (0%), age 15 (10%), age 16 (3%), and age 17 (15.4%), compared to the norming sample: age 14 (6%), age 15 (0%), age 16 (1%).

The Texture variable appears in both the Hypervigilance Index (T = 0), and the Coping Deficit Index (T>1). Since Texture has been characterized as representing a tangible relationship concerning experiences with touch and contact as learned from the early interactions between child and caregiver (Leavitt, 2000), it was possible that although the indices in/to which it loaded were not indicative of maltreatment severity,

the determinant itself might be. Therefore, an additional analysis was performed to determine if this variable contributed to the prediction of the number and severity of adolescents' maltreatment experiences. Because SumT was not normally distributed, the variable was converted to a dichotomous variable. Indeed, the model for *Sexual Abuse* not only remained significant, but in addition to the special scores of GHR and PHR sharing a relationship with the severity of *Sexual Abuse*, there was a greater likelihood to have at least one texture response among adolescents who experienced more severe *Sexual Abuse*. This challenges Leavitt's (2000) hypothesis and findings that trauma that occurs in childhood may lead to difficulties in combining physical occurrences into their subconscious, resulting in, "serious forms of interpersonal impoverishment in which the subject no longer strives for meaningful relations with others" (p. 57).

It is possible that adolescents with more severe *Sexual Abuse* histories had more than one texture response because of a greater neediness for comfort; therefore, it may not have been reflective of a healthy attachment style, which has been linked to one texture response. To examine this possibility, texture was dummy coded with T = 0, T = 1, T>1. The outcome did not change. Nonetheless, given this determinant's relation with the severity of *Sexual Abuse*, and its importance identified in previous studies, it would appear that Texture is an important variable independent of the constellations (i.e., CDI or HVI) on which it appears.

Putting It All Together

Overall, there were seven out of forty significant predictor models, which is 17.5% of the analyses conducted. Although some of the hypotheses were supported,

suggesting that different aspects of these instruments are indeed sensitive to particular maltreatment attributes, the findings also clearly underscore the importance of *not* using these personality measures to substantiate maltreatment. Furthermore, the lack of significant findings supports previous research that there is not a set cluster of symptoms that emerge among youth who have been maltreated.

Since the primary purpose of this study was to determine the sensitivity of the MMPI-A and Rorschach to the experiences of maltreatment among adolescents, it is also important to consider methodological issues that may have impacted the findings. With respect to maltreatment classification, there will be a discussion of varying definitions of maltreatment, the application of the MCS to adolescents, and the impact of cumulative trauma. Issues related to the MMPI-A will be the instrument's self-report format, its cultural sensitivity, and composition of scales. The section addressing the Rorschach includes a review of the controversy surrounding this projective technique, issues of validity and reliability, issues of administration and scoring accuracy, and cultural considerations.

Personality Assessment of Adolescents with Maltreatment Histories

Maltreatment Classification

Vague definitions. Many of the studies conducted have provided vague definitions of sexual abuse (see Violato & Genuis, 1993). Some studies have included only incest victims, whereas others have included individuals who had been exposed to pornographic material or fondling. Some of the sexual abuse endured may have been violent, whereas some may not have involved physical force (Lucenko et al., 2000). Not

all of the articles specifically defined the exact nature of the sexual abuse. Furthermore, when clinicians are referring to the literature to refresh themselves on the impact of sexual abuse, it is important for them to consider that youth who have experienced different levels of sexual abuse may have different outcomes. Likewise, Lucenko et al. (2000) discovered that individuals who had been bribed by the perpetrator of sexual abuse evidenced more significant impairment than individuals who had been forced to perform sexual acts. As noted in footnote 5, bribery was not coded in this study. Additionally, that was generally not a questions asked of the victims.

The Maltreatment Classification System. The Maltreatment Classification System (MCS) was developed in an effort to alleviate the problems associated with varying and vague definitions of maltreatment (Cicchetti & Barnett, 1991; Barnett et al., 1993). The effectiveness of the MCS has been demonstrated in numerous studies (Barnett et al., 1993; Bolger & Patterson, 2001; Bolger et al., 1998; Cicchetti & Barnett, 1991; Cicchetti & Rogosch, 1997; Kim & Cicchetti, 2003; Manly et al., 1994; Manly et al., 2001; Smith & Thornberry, 1995; Thornberry et al., 2001).

The MCS and adolescents. A historical perspective on the maltreatment histories of adolescents in this sample allowed for use of the MCS. However, there were some challenges in applying certain codes to youth at this developmental level. In particular, the three areas of *Neglect* (i.e., *Physical Neglect*, *Neglectful Supervision*, and *Educational/Moral Neglect*) posed the greatest difficulty, as the examples provided in the MCS did not specifically address adolescent care needs. Additionally, while actions that facilitated a child's absence from school or encouraged a child to drop out of school were

identified as codeable under the *Educational Neglect* category, truancy in general did not necessarily constitute parental mismanagement of their children's education. However, a parent's lack of involvement in a child's education could be perceived as equivalent to the failure to ensure that the child's mental health needs are being met or failing to provide adequate supervision.

In order to alleviate the complications of using the MCS with adolescents, it is important to update the MCS to accommodate this developmental time period. Future research should identify the experiences of adolescents and then examine the validity and reliability of the system with the modifications. Nonetheless, inclusion of a solid classification system that allows for identification of specific maltreatment variables in research and utilization of sound assessment instruments in clinical practice is needed in order to facilitate intervention and treatment.

Cumulative trauma. The foundation of this study was built on the premise of a cumulative nature of maltreatment. In addition to the number of primary subtypes and severity of each type, the nature of a maltreatment experience could also be evaluated by considering the duration of the maltreatment (chronicity) or how often the maltreatment occurs (frequency). For instance, a severity rating of '4' for *Physical Abuse* may have been assigned to an adolescent with a history of one hospitalization. That may have been the first incident, and perhaps the only occasion of physical abuse. Another adolescent (within the same age range) may have experienced beatings daily with only occasional marks or bruises. In both cases, depending upon whether there was verbal disparage, *Emotional Maltreatment* may or may not have also been coded. However, it is difficult to

address whether it is the degree of the *Physical Abuse* inflicted that might contribute to an individual's sense of self, coping style, thought processes, and relationship capacity, or if it is the nature of that abuse. Such dilemmas have created obstacles for researchers interested in maltreatment research.

Using the MMPI-A and Rorschach to Measure Personality

The current investigation involved the use of the MMPI-A and Rorschach in the assessment of adolescents who have been maltreated. These two assessment tools are the most widely used personality measures (Archer & Newsom, 2000). Aside from an instrument's sensitivity to different experiences, it is important to consider issues pertaining to reliability and validity when deciding which measures to use in a psychological evaluation; this is particularly critical in forensic assessments when the data may be challenged in court.

MMPI-A Scoring Considerations

Response style. When there are few if any scales that are elevated on the MMPI-A, it is important to consider whether the profile represents a normally functioning adolescent or an adolescent attempting to conceal symptomatology (Baer, Ballenger, & Kroll, 1998). Archer (1997a) highlighted the fact that over 30% of the clinical sample used in the norming of the MMPI-A produced profiles void of any clinically elevated basic scales. Alperin et al. (1996) suggested that the absence of elevated scales within a clinical adolescent population might be reflective of deviant behaviors that are often the norm during this stage of development, rather than an indication of either adolescent psychopathology or underreporting. However, as the adolescents in the norming sample

generally endorsed fewer items, a "shaded region" for those who obtained a *T-score* between 60 and 65 was created. This was done because the possibility exists that psychological symptoms in adolescents might not be as defined as that of adults (Alperin, et al., 1996). Similarly, Williams et al. (1992) suggested that it is possible that psychopathology is not fully expressed during adolescence. A longitudinal investigation of outcomes related to MMPI-A scale scores during adolescence would help to shed light on this pattern. Accordingly, if adolescents who had scores approaching the at-risk range (e.g., a *T-score* of 58) developed in adulthood a mood disorder consistent with those personality traits, there would be more credence for such scores (i.e., a shaded region).

The very nature of the current sample lends itself to suspect a guarded presentation. For most of these adolescents, their placements were being decided. In order to determine if the adolescents attempted to present themselves in an unrealistically favorable manner, the mean L-scale of the current sample was examined. The mean *T-score* was 59.23, with scores ranging from 37-106. Since the mean score was less than 60, there is not support that they overtly attempted to protect themselves from appearing distressed; however, there certainly were some adolescents who were less than truthful in the assessment and probably underreported psychological symptoms and problems. In fact, many researchers have opted to exclude participants with *T-scores* over a particular value. For example, Ben-Porath, Shondrick, and Stafford (1992) noted that forensic evaluators should view *T-scores* over 80 on the L-scale as invalid profiles. Seventeen (10.8%) adolescents from this sample had scores of 80 or above on this validity scale; 23.6% had scores of 65 or higher.

There is a second validity scale (K-scale) that is used to determine whether or not a respondent has the tendency to slant his or her answers in a direction that minimizes implications of poor emotional control and personal ineffectiveness. The MMPI instruments are scored differently between adults and adolescents. In order to eliminate the impact of defensiveness on scores, the MMPI-2 is scored using a K-correction. However, there has been little research regarding the utility of controlling for characteristics that many individuals prefer to deny about themselves and their families on the MMPI-A. One study did (Alperin, Archer & Coates, 1996) examine the effect of a K-correction on diagnostic classification accuracy. The researchers did not find a difference based on the correction; however, non-K corrected *T-scores* (using a cutoff of 65) were better overall discriminators between the clinical and non-clinical group. Twenty-five adolescents had K-scale scores over 65. However, it is important to consider that elevations on the K-scale in persons taking the MMPI in court situations are common and must not be interpreted as signifying defensiveness as a personality characteristic (Wakefield & Underwager, 1993). It is a normal and adaptive response to the situation. Investigations on the K-scale's significance in forensic assessment of youth who have been maltreated should be further examined.

Demographic variables. Professionals have raised concern regarding the effects of demographic variables on MMPI-A scores. In the current sample, there were no differences in scores based on ethnicity or gender. However, there was no information regarding race for about one-third of the sample. This is a major limitation in light of the above discussion pertaining to the influence of acculturation upon scores. Consequently,

even though there were no group differences on MMPI-A scores, it is important to note that the level of acculturation was not measured in this study.

There is support that culture and/or ethnicity impacts scores on MMPI instruments. For example, Negy, Leal-Puente, Trainor, and Carlson (1997) examined the performance of Mexican-American adolescents on the MMPI-A. The researchers found that the mean scale scores did not deviate from the norming sample, despite the fact that Hispanic adolescents were underrepresented. However, higher elevations were found among less acculturated and lower SES participants. In a review (Dana & Whatley, 1991) addressing the MMPI instruments among African American adults, the authors cautioned examiners that Validity Scale F and Clinical Scales 8 (Sc: Schizophrenia) and 9 (Ma: Mania) are consistently higher among African American respondents. The authors emphasize that interpretation of MMPI data have been unintentionally impacted by culturally determined thought processes. They also question the cultural validity of the instrument because there has been an inattention to African American personality theory. Accordingly, bias may result in pathologizing behaviors if the cultural context for African Americans is not taken into account.

Additionally, there were very few Asian-American adolescents in the current sample. Nonetheless, for clinicians who do use this instrument with adolescents of Asian descent, similar considerations with regards to acculturation need to be made. Several studies have found higher scores on certain MMPI/MMPI-2 scales among Asian Americans, and again, acculturation appears to account for these elevations (Tsai & Pike, 2000).

In order to accommodate differences in responding as well as expression of various personality traits, the MMPI-A contains *T-score* conversion norms for each sex. However, there typically is a disproportionate ratio the number of males and the number of females who have experienced different maltreatment subtypes and it may be that males and females respond differently to trauma. Another noteworthy consideration was posed by Scott et al. (2003). The authors emphasized the possibility that culture may not only influence scores on the scales, but that culture may influence the meaning and interpretation of a traumatic experience. Accordingly, there may be occasions when individuals are enmeshed in a culture where open discussion of the trauma is sanctioned, where survivorship is revered, and where victimization is not stigmatized. Moreover, males and females within different cultures may be differentially impacted by a traumatic experience, which could potentially affect response patterns. Therefore, an interaction between gender and maltreatment experience was not examined and is an area that warrants future investigation.

Scoring accuracy. The objective nature of the MMPI-A leaves little room for judgment in the scoring. The only instance in which there might be a question would be if a respondent filled in a circle too lightly or if both circles were filled in, with one of them looking as though it had been erased. Such difficulties can be avoided if the examiner simply reviews the answer sheet before the examinee leaves.

Another potential area for human error can occur when hand scoring this instrument or when entering the data into a scoring program. Computer scoring of the MMPI instruments generally requires that the person inputting the data enter them twice

for data verification. The computer will recognize scoring discrepancies for any items and then the person can check which response is correct. The MMPI-A scores used in the current study were obtained by hand scoring procedures. When 20% of the protocols were scored by a second person, there was a 3% error rate for the content, supplementary, and clinical subscales, and a 5% error rate for the validity and clinical scales. The primary investigator resolved any discrepancies. However, given that pattern, it is likely that those same rates applied to the 80% that were not scored twice. Hand scoring of protocols is often done by an administrative assistant who is not familiar with the instrument and/or has multiple duties that may interfere with the time needed to carefully review all scores.

Once raw scores are obtained, there are scoring sheets that allow for conversion of the raw scores to *T-scores*. A careful review of these forms indicated that there was not always a line for each possible raw score. For example, Scale 8 (Sc: Schizophrenia) contains 77 items. On the profile sheet, there are only three lines between a raw score of 10 and a raw score of 15, yet there are four possible numbers that fall between 10 and 15 (i.e., 11, 12, 13, or 14). Thus, the form itself is not clear on what the corresponding *T-scores* would be. Although such a problem would only affect the *T-score* by a couple of units, it still interferes with the overall accuracy of the scores.

The Structural Summary and scale design. There has not been much research pertaining to the Structural Summary. However, Factor Five: Health Concerns, Factor Eight: Psychoticism, and Factor Four: Social Discomfort predicted the severity of *Physical Abuse*, the severity of *Sexual Abuse*, and the severity of *Emotional*

Maltreatment, respectively. Although there were many maltreatment attributes that these factors did not predict, the positive findings suggest that these factors have utility in psychological assessments. More research should be used in discerning the clinical applications of the Structural Summary as most investigations have focused on its statistical make-up.

One further note was that for all three of the positive findings pertaining to the MMPI-A, there were outcomes that appeared contradictory based on what the scales were purported to measure. One such example was A-lse, which was negatively associated with the severity of *Physical Abuse*, while others scales assessing low self-confidence and concern over one's health were positively related. The other two scales that deviated from the rest of the data in the set as far as the direction of the relationship were A-sch and Subscale Si2 (Social Avoidance), although these latter two may have alternative explanations as noted earlier in this section.

Rorschach Scoring Considerations

Rorschach controversy. Presently, there is a lack of literature addressing the variation in responding of youth who have experienced different maltreatment subtypes. There have been some investigations on responding patterns on among perpetrators (e.g., Bridges et al., 1998; Gacono, Meloy, & Bridges, 2000; Gerard, Jobes, Cimbolic, Ritzler, & Montana, 2003; Kaser-Boyd, 1993; Morgan & Viglione, 1992). However, the general consensus is that while the interpreter may be able to recognize that a client is withholding something, it is not likely that the interpreter would be able to ascertain what information was being held back. Opponents of projectives in general, have contended

that the use of a highly subjective instrument such as the Rorschach in forensic settings is problematic (e.g., Garb et al., 2002; Wood et al., 2001a; Wood, Nezworski, Stejskal, & McKinzey, 2001). Accordingly, Grove et al. (2002) contented that the Rorschach is far from the *Daubert* standards of expert testimony. In addition, others have argued that projective tests should not even be considered to assess the probability as to whether a child has or has not been maltreated (e.g., Garb et al., 2002; Lilienfeld et al., 2001a).

Some researchers have made strong statements regarding the use of certain Rorschach variables as indicators of abuse (e.g., Holaday, 2000; Kamphuis et al., 2000; West, 2000; Widom & Morris, 1997). In her meta-analytic study, West (1998) concluded that projective techniques, including the Rorschach, could be used to discriminate between children who have been sexually or physically abused and nondistressed children. In fact, West (1998) noted that objective measures have been less successful in discriminating children with a known abuse history from those without a known history. The author explained often times victims of maltreatment, willfully or not, block out their trauma. Consequently, self-report scales would not reflect abuse that the client either consciously or otherwise is suppressing; projectives are designed to tap into the unconscious and to reveal negative affect. Furthermore, in a rebuttal to critics of her original article, West (2000) emphasized that her conclusions that projectives could be used to classify those who have been abused from those who have not were not based on the supposition that entire instruments, such as the Rorschach, are effective in discerning abuse history, but rather specific items measured within each test have been found to be effective discriminators.

Many professionals have contented that there is utility in using the Rorschach to examine the effects of trauma on children and adolescents. The rationale for this assumption is that through subjective interpretation of the ink blots, children and adolescents were able to more accurately relate their own emotional state than by means of self-report or by parent observation. Individuals who administer the Rorschach to latency-age children have discovered that children who have a variety of mental health issues have different Rorschach profiles than normative values. For instance, diagnoses such as Depression, Attention Deficit Hyperactivity Disorder, or PTSD each are associated with lower scores for the Egocentricity Index, Form Quality of plus or ordinary, and special scores of COP. However, most clinicians are also mindful that while certain variables may be deviant across diagnostic categories, this information does not in and of itself differentiate between such diagnostic categories, especially when the child and family hold back pertinent information concerning any traumatic events. Holaday (2000) speculated that youth with trauma histories are often overlooked or misdiagnosed because of withholding pertinent trauma history, underreporting symptomatology, or addressing presenting symptoms rather than underlying problem.

Comparison to norms. The Rorschach data from the current study deviates from published Comprehensive System norms. Such findings have been noted in other samples of adolescents (Archer & Krishnamurthy, 1997; Brinkman, Overholser, & Klier, 1994; Hamel, Shaffer, & Erdberg, 2000; Lipovsky, Finch, & Belter, 1989; Shaffer, Erdberg, & Haroian, 1999). Noteworthy concerning the current sample was the fact that due to the wide range of responses, Lambda was not a normally distributed variable in this sample.

Therefore, a log transformation was done. Several researchers (e.g., Meyer, Viglione, and Exner, 2001; Meyer, 1999b) also noted that Lambda was skewed and displayed a kurtosis distribution. Meyer et al. (2001) noted that when more than half of the responses are pure form responses (i.e., as the denominator starts to approach zero), small differences in F can produce large differences in Lambda. These researchers proposed using Form% rather than Lambda. Form% is calculated using the formula FR; it is the percent of pure form over the number of responses, rather than the number of non-pure form responses. This variable has been found to be normally distributed. Similarly, Form% in this study did not encounter the same problems with skewness and kurtosis. Additionally, exploratory analysis substituting Form% in place of the transformed Lambda value did not impact the outcome of the regression analysis.

In addition to Lambda deviating from the norm, the overall sample mean value on the Egocentricity Index was one standard deviation below the norms for each age group (e.g., 14, 15, and 16) presented in the most recent edition of the Comprehensive Workbook. This was also noted in other dissertation studies (e.g., Bank, 2001; Talbott, 2001). One final note is that Exner (2001) does not contain norms for 17-year-olds; there are not separate norms for this age group, nor are these adolescents included in the adult sample. Forty of the adolescents in the current sample were 17-years-old. Therefore, further research needs to include descriptive data for this age group, particularly since this is a transitional developmental period from dependence to autonomy.

Interrater reliability. The initial reliability analyses were below standards set by the literature of at least 80% agreement among raters (Acklin, McDowell, Verschell, &

Chan, 2000). To resolve this issue, the author of this dissertation reviewed each protocol to determine where the scorers disagreed. Generally, the discrepancies were with location (due to the absence of a location sheet), form quality (most disparity between assigning FQu or FQ-), shading variables (e.g., C` or Y), and color determinants (e.g., FC vs. CF). The author of this dissertation consulted with each of the raters (as well as re-examined her own coding) to review specific scoring errors, but did not discuss specific scoring decisions. In order to ensure the scoring was reliable, Meyer (1999a) conducted analyses at the response level, as well as using regression formulas for base rates. Meyer's approach was much more conservative, but the Kappa coefficients still carried the descriptors of "good" through "excellent." Nonetheless, even though the raters approved the final scoring, the procedure needed to obtain that agreement was cumbersome.

Wood, Nezworski, Stejskal, and Garven (2001) pointed out that data are emerging indicating that the scoring reliability of many CS scores is considerably lower than previously presented. The authors even proclaim, "some CS variables have a level of reliability that is questionable for clinical or forensic work" (p. 49). Researchers have also noted that consistent scoring accuracy and reliability using Exner's system has not been established among clinicians (e.g., Wood et al., 1997; Wood, Nezworski, & Stejskal, 1996). As with all assessment procedures, issues of reliability weigh heavily on the amount of error variance, which ultimately impacts the outcomes. The error variance includes systematic differences in how raters approach individual cases (for example, differences of opinion) and unsystematic errors (for example, coding errors). If a measure is reliable and valid, construct variance will be large relative to error variance. A lack of

reliability attenuates observed associations among measured variables and, therefore, yields estimates of relations among constructs that are smaller than they would be if measurement error were not present.

As clinicians debate the reliability of established methods for scoring the Rorschach, it is important that when scoring the protocols, clinicians at all levels strictly adhere to carefully and accurately encircling the precise portion of the blot utilized by the examinee. It is imperative that when scoring Rorschach protocols, labeling must be clear, so as to allow for replication by any other clinician. In particular, location must be exact, as the location code is dependent upon a precise location sheet; in addition, other components of the coding system also rely upon location. Form quality and Popular are heavily dependent upon location. A form quality of ordinary (FQo) can easily be altered to unusual or minus on the basis of location alone.

This study underscores the necessity for examiners to maintain vigilance in how and where they mark responses on the location sheet. In many cases, the location sheet was absent from the file, and follow-up determined that one was probably never used. Although during the course of one's practice, it may be difficult to maintain vigilance in maintaining a location sheet that it discernible to any qualified clinician, it is nonetheless, essential to do so.

Interrater reliability can be lowered further by insufficient verbalization by the examinee. For example, "It looks like a head ... here's eyes, mouth and ears" could be coded animal detail (Ad) by one examiner and human detail (Hd) by another. In addition, the reliability of the scoring for Comprehensive System coding requires a consistent,

approved procedure. For example, should interrater agreement be a percentage based on code or coding segment? Should a reliability coefficient that controls for chance agreement, such Kappa be used?

Administration issues. Another plausible explanation for the difference in scores obtained for this sample as compared to the norm reference group may be the inquiry phase of a Rorschach administration. Weiner (2001) contended that the examiner's expertise in inquiry technique is of paramount importance, especially for establishing the presence of other than pure form determinants. For instance, Weiner (2001) pointed out that the Exner (1995) data collected for the CS database were collected by an experienced research staff, whereas there have been other studies (e.g., Shaffer et al., 1999) for which protocols were collected by graduate trainees who presumably did not have as much experience as Exner and colleagues. Indeed, the Rorschachs for the current study were administered by multiple examiners who had variability in training experiences, both on a didactic and an experiential level. Thus, lack of proper inquiry skills by an examiner might result in an increased Lambda; however, it should have less of an effect on the value for the Egocentricity Index.

Ritzler and Nalesnik (1990) conducted a study to determine the effect of inquiry on scoring of the Rorschach. The researchers found that if locations were clearly marked, the location, developmental quality (with the exception of DQv), z-scores, populars, form quality (with the exception of FQu), movement responses, pairs and reflections, content categories, and special scores (e.g., aggressive movement, morbid, personalized responses, preservations, incongruous combinations, and fabulized combinations) did not

differ between the free association part of the administration and the inquiry phase. In contrast, color and shading determinants as well as cognitive special scores were dependent upon inquiry. Lack of inquiry led to an inflation of Lambda determinants and a reduction in blends.

Given the fact that the mean Lambda for the current sample was elevated, does the possibility exist that there was insufficient querying? It is important to note that many examiners used a question mark or single word to indicate that a query had been done. Presumably, they had asked only questions that were permitted according to the Exner System. However, it was not clear what had been asked. Moreover, a qualitative examination of the protocols does reveal variation in the degree of querying. Even more striking was the fact that there was an observable change over time in how examiners handled the inquiry phase of the Rorschach. It appeared that graduate students who were early in their training experiences improved their querying methods over time.

Demographic considerations. Ritzler (cited in Niolin, 2003) described a study in which the Rorschach was administered first in the client's native language and then in English. Similar to studies on the MMPI instruments, level of acculturation played a notable role in the outcomes. Accordingly, individuals with lower acculturation showed more deviate indications when the Rorschach was administered in English, whereas individuals with higher acculturation scored closer to the norms with an 'English' Rorschach. Krall et al. (cited in Niolin, 2003) examined the Rorschach protocols of African American children between the ages 3 to 12. The children produced less good form quality (X+%), fewer location W's, and more location D's. There were no

differences in the number of responses, location Dd's, movement responses, populars, or special scores. Moon and Cundick (cited in Niolin, 2003) administered the Rorschach to American and Korean students in their respective native languages, and to Korean-American students and individuals who were bilingual in English. Similar to the study with African American youth, native-born Koreans used the whole card (W) less and produced lower X+%. Sangro (cited in Niolin, 2003) found significant differences between Spanish and American respondents who were administered the Rorschach. Another study found that, because of language differences, Hispanic examinees were assigned more cognitive special scores, such as Deviant Verbalization (DV) and Incongruous Combination (INCOM). The Hispanic examinees were also more likely to give more color responses. Consequently, researchers have contested the meaning of certain scores and ratios for Hispanic individuals in the United States (Constantino, Flanagan, & Malgady cited in Niolin, 2003).

Thus, the findings presented here demonstrate that, even if the Rorschach is administered in an individual's native language, or an individual can speak English, response patterns may be greatly influenced by the examinee's cultural frame of reference, level of acculturation, and fluency in the English language. Even though there were no differences in the variables according to race, the fact that ethnicity was unknown for one-third of the current sample, and that these factors were not taken into account, is a major limitation to the generalization and interpretation of the findings.

MMPI-A and Rorschach Associations: Implications for Clinical Use

For the most part, the findings indicated that the MMPI-A scales and Rorschach variables identified in each of the constructs did not predict the same maltreatment attributes. The exception was the prediction of both the MMPI-A scales and Rorschach variables measuring the *Self-System* in the severity of *Physical Abuse*. In fact, it was noted that while the MMPI-A scales measuring the *Self-System* statistically predicted the severity of *Physical Abuse*, the *T-scores* were not clinically elevated. On the other hand, the Rorschach variables were in the impaired ranges. These data underscore what has been prevalent in the literature; that is, scores on MMPI-A scales for adolescents tend to be within the normal range even for adolescents with mental health histories, yet values on Rorschach variables tend to exceed the normative values even among children and adolescents without identifiable psychopathology.

In a 1999 article elucidating two clinical cases that jointly used the MMPI-2 and Rorschach, Weiner wrote, "Because of the pattern of clinical and test findings they illustrate does in fact occur, and is known to occur widely in clinical practice, its occurrence unequivocally falsifies any statement that Rorschach assessment is without incremental validity or clinical utility" (p. 338). This conclusion was based on the use of the integration of the two instruments to explain the personality structure and dynamics of a couple involved in a custody battle. Specifically, most of the scales on the MMPI-2 were within normal limits for both respondents. However, the validity scales were significantly elevated, suggesting that the examinees intentionally portrayed themselves as not having any emotional difficulties. On the other hand, both of their Rorschachs

evidenced significant problems with emotional control and insufficient coping resources; one had additional problems with reality testing and the other demonstrated relationship difficulties.

While Weiner (1999) contended that the findings from the Rorschach in the evaluation, particularly given the guardedness displayed on the self-report ratings, supported the utility of examining the data from the two assessment tools together, critics might very well interpret the outcome as suggesting that the Rorschach is more likely to pathologize individuals more than the MMPI-2. Furthermore, the lack of relations between the MMPI-2 and Rorschach data, even in the two cases presented in the article, call into question whether they are measuring similar constructs. Nonetheless, the fact that the validity scales were elevated on both MMPI-2 profiles jeopardizes the integrity of those protocols.

Ganellen (1994) discussed the importance of considering how frank examinees are during an evaluation. Accordingly, respondents may be inclined to create favorable impressions in order to mask their distress. As suggested by Ganellen (1994), the validity scales on the MMPI-A may help to elucidate this concern. It is also important to consider the population from which the sample is drawn. For instance, Smith, Baity, Knowles, and Hilsenroth (2001) suggested that the Rorschach may be especially useful in the assessment of inpatient children and adolescents, as it is may not be as amenable to "faking good" as are self-report indexes. For example, Belter et al. (1989) concluded that the Rorschach findings from their inpatient sample appeared to be more consistent with the clinical presentation of the participants as having low self-worth as evidenced by

observations of staff. However, can a similar stance be taken when the participants are obtained from a non-clinical population? Such findings have also been illustrated in other studies collecting reference group data (e.g., Hamel et al., 2000; Shaffer et al., 1999). For example, Shaffer et al. (1999) found that the nonpatients often appeared disturbed on Rorschach variables measuring perceptual accuracy, distorted thinking, and emotional functioning, including X-%, Lambda, the Affective Ratio, the Form-Color Ratio (FC: CF + C), SumY, SumT, WSumC, and WSum6.

Then too, Hamel et al. (2000) examined the Rorschach values of selected variables from 100 pre-adolescent children. There were five exclusionary criteria: no history of psychological or psychiatric evaluation or inpatient or outpatient mental health treatment; no legal history; no more than one suspension; no alcohol or substance use; and current grade point averages (GPA) greater than 2.0. The mean *T-score* of the subscales on the Conner's Parent Rating Scale-93 were all less then 51.58. Despite the exclusionary criteria and scores in the average range on the parent ratings, 44% had a positive DEPi and 48 had a positive CDI. Ninety-six percent of the participants scored below .70 and 85% scored below .50 on X+%, while 97% of the children scored above .15 and 75% scored greater than .30 on the X-%. The researchers pointed out that based on self-report measures, the children (as a group) would be described as well-behaved, social, content, and exhibited good self-control, whereas the data from the Rorschach would suggest that the children were misinterpreting their surroundings, having significant problems establishing and maintaining interpersonal relationships and coping within a social context, and displaying symptoms of an affective disorder. Certainly, it

may not be judicious to compare self-report and Rorschach data on a collective level; nonetheless, the disparate findings bring to light the dilemma that such an incongruency can bring to bear upon clinicians.

The MMPI-A scales that were purported to measure similar constructs were significantly related to each other. There are several explanations for the moderate correlations for the MMPI-A. First, many of the items overlap amongst the scales. Additionally, since the MMPI-A is purported to assess personality features, it would follow that different aspects of personality, such as self-concept, emotionality, cognition, and socialability are interrelated. Thus, the high correlations are suggestive of convergent validity as high intercorrelations demonstrate that the aforementioned scales are probably related to the same construct. It is important to note, however, that such relations does not necessarily mean that the constructs were the ones identified in this study.

In contrast to the significant correlations among the MMPI-A scales within each of the four constructs, the Rorschach variables were not related to each other. When examining if variables are measuring the same construct, one should readily see that the item intercorrelations for all item pairings are very high. High correlation coefficients provide support for the assumption that the selected variables are related to the same construct. As previously noted, many researchers have questioned the construct validity of the Rorschach because of its failure to relate to other measures that claim to measure similar constructs. Proponents of the Rorschach defend the validity of the data by explaining that projective and objective assessment tools are two distinct types measurements and should not be expected to correlate with each other. That explanation

would not clarify why the Rorschach variables themselves were not related to each other, as they are all components of the single projective instrument. Ganellen's (1996c; 2001) viewpoint may offer an elucidation; perhaps, it is possible that the Rorschach variables may not have been related to each other because they are measuring distinct aspects of the construct. Thus, the Rorschach variables each be related to a criterion variable (e.g., *Affective Regulation*), but may not be significantly correlated to each other. Factor analytic studies might help to resolve how the Rorschach variables work together to form the constructs. However, because some of the Rorschach variables are not normally distributed and due to the low correlations among them, they may not be suitable for factor analysis (Weiner, 1995).

An additional finding from the current study was the fact that the MMPI-A scales and Rorschach variables did not correlate with each other despite the similarity in labels assigned to the scales and variables. The lack of associations is consistent with previous findings (e.g., Archer & Krishnamurthy, 1993; Krishnamurthy et al., 1996; Meyer, 1999b). In particular, the literature has pointed to the differences in response format (e.g., Viglione, 1995) for the lack of statistical findings. More research is needed to better understand how best to integrate findings from these personality measures in clinical work. Meyer (1999b) suggested covarying the number of responses produced on the Rorschach; the researcher found stronger relations when this variable was taken into account. However, Archer and Krishnamurthy (1999) wrote, "the assessment literature spanning the last 50 years and involving literally thousands of participants has failed to provide consistent evidence of any stable Rorschach-MMPI relation" (p. 321).

Limitations

One caveat is that the current findings were based on the Bonferroni adjustment procedure in order to avoid a Type I error given that there were multiple analysis per hypotheses. However, these analyses were exploratory in nature and it is important not to ignore potential findings; that would be a violation of a Type II error. Therefore, when evaluating the power of an effect, in the absence of other measures of effect size, the *p*-value can convey the strength of the finding. For instance, a *p*-value of .03 is more encouraging as a line for further study (say, with a larger sample size) than a *p*-value of .67. Accordingly, although not significant at the $p < .01$ level, the *Self-System* variables measured by the Rorschach predicted the severity of *Neglect* at $p = .047$, the Rorschach variables measuring *Affective Regulation* predicted the number of maltreatment subtypes at $p = .03$, *Cognitive Processes* variables from the Rorschach were predictive of the severity of *Sexual Abuse* with a *p*-value of.017, and MMPI-A scales measuring *Cognitive Processes* predicted the severity of *Physical Abuse* at $p = .023$.

Several limitations were addressed throughout the body of this report as they pertained to the issues being covered. However, there are three primary limitations that are worth highlighting: use of archival data; failure to control for other maltreatment attributes; and lack of control for other influential factors.

Archival Data

One such limitation of the current study is the reliance on archival data to discern maltreatment histories. Although every effort was made to reduce classification errors by eliminating participants for whom a particular form of maltreatment was only suspected

or the information was not mentioned in the chart, it is likely that some errors of classification did occur. However, while some of the records may have included inaccuracies, they contained what the clinician knew about the client's maltreatment history. Therefore, the findings of this study are relative in that they indicate areas of psychological impairment that should be broached when developing a course of treatment for adolescents who have been abused.

Maltreatment Attributes

Another limitation of this study was the lack of more detailed attributes of adolescents' maltreatment experiences, such as age of onset, duration of maltreatment, frequency of the maltreatment, or the relationship of the perpetrator to the victim (Kendall-Tackett, Williams, & Finkelhor, 1993). Although the MCS does allow for classifications to be made for some of these variables, lack of information about these issues in a majority of files precluded meaningful analyses of these factors. Although the current study was able to detect several associations between the severity of abuse, a finer grained analysis, exploring the relation between more specific maltreatment characteristics and adolescents' MMPI-A and Rorschach results would provide additional information to be considered in identifying the individual treatment needs of adolescents who have been maltreated under different conditions.

Exogenous Factors

One of the criteria for inclusion for the study was having an IQ over 70. However, there were some adolescents who met that criterion, but still had a Verbal IQ or Performance IQ in the 60's. Although there is some evidence in the literature that below

average intelligence is risk factor for maltreatment, this study did not find significant correlations between IQ and specific maltreatment attributes (i.e., the number or severity of maltreatment subtypes). However, it was possible that performance on cognitive tasks was associated with the level of understanding and style of responding to the personality instruments. Due to the large number of variables in this study, it would be difficult to draw conclusions about the relations between IQ scores and MMPI-A scales or Rorschach variables. However, given the fact that some of the MMPI-A scales and Rorschach variables were significantly related to FSIQ and VIQ scores ($p<.05$), it would be important to further examine if cognitive functioning influences the level of understanding and style of responding to the personality instruments, which would have implications for interpretation. This is particularly true in light of the fact that the Lie-scale on the MMPI-A and Lambda on the Rorschach were inversely related to IQ scores. Given such relations, the fact that IQ scores were not controlled for in this study is also a potential limitation.

Likewise, the analyses did not control for family or background factors. Maltreatment does not occur in a vacuum. For instance, parental psychopathology needs to be considered. Societal influences are particularly important, as poverty, unemployment, violence, and drug abuse within the community, often times cannot be separated from the stressors that adversely affect the home environment. Certainly amidst such adversity, acute stressors often precipitate abuse. These exogenous factors confound the research aimed at delineating the effects of abuse and neglect on cognitive, emotional, and behavioral functioning, as well as on various dimensions of personality development.

Moreover, disrupted placements as well court involvement are also traumatizing factors in maltreatment. Consequently, when using these instruments as part of a psychological test battery, it is important to consider an individual respondent's life history when interpreting the data.

Summary and Conclusions

The current study was one of the few investigations that have used an operationalized system for classifying maltreatment. The use of such a system facilitates generalizability of the results for clinicians working with adolescents who have been maltreated. This methodology also allows the findings to be compared to other studies on maltreatment. Overall, the findings lent some support that certain MMPI-A scales and Rorschach variables were effective in predicting the number and severity of different maltreatment experiences. However, as previously noted, there were more models that were not significant compared to the number of positive findings. That is not to say that these measures should be avoided in the assessment of adolescents who have been maltreated. In fact, because both instruments were related to different maltreatment attributes, using both of them in a psychological assessment battery would provide a greater expansion of information than had a clinician opted to include just one measure in the evaluation. Moreover, although only the *Self-System* items demonstrated incremental validity, it appears that the MMPI-A scales and Rorschach variables provided different information, and thus what one did not provide, the other did.

Nonetheless, the findings highlight the fact that adolescents who have been abused and neglected do not present with a uniform personality structure. Each enters this

world with unique characteristics, each experiences his or her world differently, and each is affected differently by the trauma he or she has endured. They each experience their environment uniquely, and the heterogeneity of maltreatment experiences impacts each of its victims differently. Thus, the intersection of individual personality traits and distinctive maltreatment experiences need to be further evaluated in empirically sound studies. Such investigations can serve to further promote an increased understanding of the consequences of such abuse upon its victims during the adolescent stage of development.

Perhaps most importantly was that this study underscored measurement issues related to both instruments that need to be resolved. The self-report format of the MMPI-A creates a challenge when trying to assess personality dynamics as it relies on self-awareness and honesty, both of which may interfere with the integrity of the data. Although the validity scales help to ascertain the degree of truthfulness and guardedness of a respondent, the fact that even adolescents from clinical samples consistently yield scores in the normal range raises questions as to the ability of this instrument 'to get beneath the surface.'

There is a large group of researchers who have criticized the Rorschach because of weak psychometric properties. These concerns are not unfounded. Although interrater reliability was adequate to excellent for many of the variables, there was variation in the administration, which ultimately affects scoring, and in the scoring itself. These findings are even more salient as the Rorschachs were gathered from archival records, rather than

part of a research protocol. Thus, it would be important to focus a more thorough review of how clinicians administer, score, and interpret the Rorschach in standard practice.

The ultimate goal of an assessment is to better understand levels of functioning as well as to help guide treatment. However, the use of sound assessment tools is needed to achieve that end. Therefore, although this study suggested that certain MMPI-A scales and Rorschach variables could capture aspects of adolescent maltreatment experiences, a greater devotion to the instruments' design and cultural sensitivity is needed to ensure their integrity in such evaluations.

Appendix A

Maltreatment Classification System

For a copy of the MCS, please refer to "Defining child maltreatment: The interface between policy and research," by D. Barnett, J. T. Manly, and D. Cicchetti, 1993, *Child abuse, child development, and social policy*, pp. 54-73

Appendix B

MMPI-A Structural Summary

For a copy of the MMPI-A Structural Summary, please refer to *MMPI-A: Assessing Adolescent Psychopathology* (2nd ed), by R.P. Archer, 1997.

Appendix C

Rorschach: Symbols and Criteria for Determinant Coding

For a listing of scoring criteria for the Rorschach Coding Determinants, please refer to *The Rorschach: A comprehensive system, Vol. 1: Basic foundations (3rd ed.)*, by J. E. Exner, 1993, pp. 104-105.

Appendix D

Rorschach Structural Summary

For a copy of the Rorschach Structural Summary, please refer to the Rorschach workbook for the Comprehensive System (5th ed.), by J.E. Exner, 2001.

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VITA

Michelle Marie Perfect was born on October 15, 1975, in Bronx, NY, the daughter of Robert and Lorraine Perfect. Michelle lived in Brooklyn, NY for 10 years. In August 1986, her family moved to Pocono Lake, PA where she completed the rest of her public school education. Michelle attended Ithaca College. She was enrolled there from September 1993 through May 1997. In 1997, she received a Bachelor of Arts degree in Psychology and History. Following graduation, Michelle enrolled in the Master of Arts program in Psychology at New York University. She received her degree in September 1999. She has been enrolled in the Department of Educational Psychology's School Psychology Program at the University of Texas at Austin since the fall of 1999.

Michelle produced some publications over the course of her graduate studies. In June 2001, she had a publication in the *Journal of Visual Impairment and Blindness* entitled "Examining Communicative Behaviors in a 3-year-old Boy (C.M.) who is Blind." Shortly thereafter, she wrote five brief chapters on low incidence disabilities. She has also co-authored a chapter on psychotherapy and an article on encouraging academic careers in school psychology. Since the first semester at the University of Texas at Austin, Michelle worked as a teaching assistant.

Over the last two years prior to the start of her predoctoral internship, she worked as a clinical teaching assistant for several courses; the positions involved supervising graduate students in their training of psychoeducational assessment, social-emotional assessment, and therapy with an interpersonal orientation. In the Summer of 2003, Michelle moved to Woodbridge, New Jersey where she completed her pre-doctoral

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